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AMHERST, MASS.

Gleanings in Bee Culture



Ring out, wild bells, to the wild sky,
The flying cloud, the frosty light;
The year is dying in the night;
Ring out, wild bells, and let him die.

Ring out the old, ring in the new,
Ring happy bells across the snow:
The year is going, let him go;
Ring out the false, ring in the true.

Ring out the grief that saps the mind,
For those that here we see no more;
Ring out the feud of rich and poor,
Ring in redress to all mankind.

Ring out old shapes of foul disease;
Ring out the narrowing lust of gold;
Ring out the thousand wars of old,
Ring in the thousand years of peace.

— Tennyson.

JANUARY

1919

Vol. XLVII No. 1

We are always in the market for HONEY and BEESWAX.
Do not sell until you have seen us.
We will pay you spot cash for anything you sell us.
Get our prices on cans and cases.

Los Angeles Honey Co.

633 Central Bldg., Sixth and Main Sts.

Los Angeles, California

Telephones: Home 10419; Main 5606

LEUTZINGER & LANE

Wholesale Dealers and Shippers of

EXTRACTED AND COMB HONEY

CORNER DRUMM AND OREGON STREETS
SAN FRANCISCO, CALIFORNIA

WESTERN BEEKEEPERS ATTENTION!!

We pay spot cash for Honey and do not handle on Commission. Write us what you have or expect to have to sell, we buy any quantity. ❖ ❖ ❖

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1918. We are paying higher prices than ever for wax. . We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. . . Big catalog free.

Carl F. Buck

The Comb-foundation Specialist

Augusta, Kansas

Established 1899

"Griggs Saves You Freight"

TOLEDO

BEE SUPPLIES FOR NEXT SEASON'S USE

Place your order now and get the large early-order discount besides avoiding the spring congestion and delays which always come.

1919 Season will be the largest in history, owing to high prices received for honey, and all factories will be taxed to limit. Already our December orders are as heavy as last June. Can we count on your order? A list of goods wanted will bring back prices at once.

Better send your name for our new catalog when it is out.

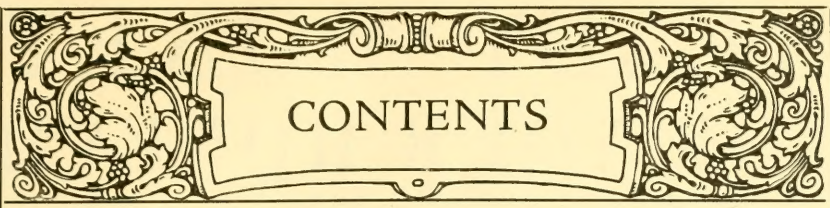
HONEY AND BEESWAX always wanted, cash or in trade.

S. J. GRIGGS & CO.,

Dept. No. 25

Toledo, Ohio

"Griggs Saves You Freight"



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Assistant Editor

H. G. ROWE
Managing Editor

APR 26 1920

READY MONEY FOR YOUR HONEY!!

SHIP NOW. If you have honey for sale, we want to buy it. Ten thousand producers in all parts of the world witness to the reliability of this house. No purchase too large or too small. We handle many carloads a year. Send us a sample and name your most reasonable price. We buy every time your price justifies.

PROMPT REMITTANCE. Remittance sent by return mail for every shipment we receive.

Honesty and integrity during the many years in the honey business have won for us the good will and confidence of thousands.

OLD COMBS AND CAPPINGS. Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

WANTED, COMB HONEY. Comb and extracted Honey find ready sales here. Tell us what you have. We buy beeswax at high prices. Always glad to reply to inquiries.

WE SELL LEWIS BEEWARE. "Lewis," stands for the highest quality Beeware known. Safe and reliable, "Made like furniture." We are glad to fulfill your needs.

Our New Home

We are now located at Pearl and Walnut Streets, and are in the largest Honey House in the country. When you are in Cincinnati don't forget to call on us, for it will be a pleasure for us to show you our wonderful new home.

**DADANT'S FAM-
OUS FOUNDATION**

**ROOT'S SMOKERS
AND EXTRACTORS**

SEND FOR OUR 1918 BEE CATALOG

THE FRED W. MUTH CO.

PEARL & WALNUT STS.

CINCINNATI, OHIO

*Bee Supplies**Bee Supplies*

Service and Quality

Order your supplies early so as to have everything ready for the honey flow, and save money by taking advantage of the early-order cash discount. Send for our catalog; better still, send us a list of your supplies and we will be pleased to quote you.

C. H. W. WEBER & CO.

2146 CENTRAL AVE.

CINCINNATI, OHIO

WHICH EXCELS? ACTUAL TESTS AND RESULTS

This past season we have carefully tested **SUPERIOR FOUNDATION** alongside of foundation of other manufacturers, including one in particular that claims the "bees take to theirs first," the tests being conducted in neighboring apiaries as well as our own. These tests utterly disprove any such claim. We find that the age and weight of the foundation used are foremost among the determining factors. If foundation fresh from the mills is used alongside of foundation that is several years old, the bees will naturally select the freshest foundation first. Nor would it be a fair test to use heavy foundation of one make against lighter foundation of another make. These conditions being equal, our experiments are highly gratifying. **SUPERIOR FOUNDATION** is unexcelled in quality by any other make. Our machines are operating at full capacity to supply the ever-increasing heavy demand for **SUPERIOR FOUNDATION**. Order from your dealer. If he cannot supply you order from us.

SUPERIOR HONEY CO., OGDEN, UTAH

HONEY MARKETS

The important news in the market is that all the restrictions on honey exports were removed Dec. 20, and the export of honey to Europe is now possible as and when shipping space is available. This circumstance is likely to strengthen the market, which has not materially weakened at any time recently. Offerings have been freer in December than before the armistice was signed but not at appreciable lower prices. As a whole, we believe the honey market is in a strong position.

Below we give market quotations that reflect almost every kind of opinion as to prices present and future:

U. S. Government Market Reports.

HONEY ARRIVALS SINCE LAST REPORT.

Medina, O.—1,386 lbs. Florida; 900 lbs. Wisconsin; 6,750 lbs. New York; 2,557 lbs. North Carolina; 9,800 lbs. Michigan; total, 21,493 lbs. arrived.

SHIPPING POINT INFORMATION.

San Francisco, Calif.—Supplies light. Practically no demand; movement draggy. Cash to producer on farm, very few sales; extracted per lb., water white, 22-23c; sage white, 20-22c; light amber and alfalfa, 19-20c; white alfalfa, 20-20½c; dark amber, 16-17c. Beeswax: 36-37c per lb.

Los Angeles, Calif.—Demand very limited, movement slow. Cash to producer on farm, extracted: white supplies practically exhausted, no sales reported; alfalfa, 20-21c; sage and mountain buckwheat, 21½-22c per lb.; comb, white alfalfa, per case, Inyo County, \$5.50; Nevada, \$4.50; Southern California, \$6.50-7.00, per case. Beeswax: 35-37½c per lb.; many growers holding for 40c per lb.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the prices at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding two weeks. Prices represent current quotations.)

St. Louis.—Supplies moderate. Demand moderate, prices slightly lower. Sales to jobbers: extracted, Southern, barrels, amber, 22-24c per lb.; California and Southern, amber, cans, 24-26c per lb. Comb, practically no supplies on market. Beeswax: prime, 40c per lb.

New York.—250 barrels and 15 tierces from Porto Rico arrived. Demand and movement slow, prices slightly lower. Sales to jobbers: extracted, Porto Rico, \$2.35-2.60, mostly \$2.35-2.40 per gallon; California, white, 25-26c per lb.; light amber, 24-25c; New York, buckwheat, 21-23c per lb. Comb, New York buckwheat, 25-30c, mostly 26-30c. Beeswax: 390 bags arrived from West Indies. Receipts moderate. Demand moderate; light, 43-44c; dark, 42-43c per lb.

Denver.—Approximately 38,000 lbs. extracted arrived. Supplies moderate. Demand and movement slow. Little change in prices. Sales to jobbers: comb, few 24-section cases, No. 1 white fancy, \$6.30; No. 2, \$5.85. Extracted: light amber, mostly 24c per lb. Beeswax: cash to growers, f. o. b. Denver, 38c per lb.

Cincinnati.—No carlot arrivals. Less than carlot and nearby receipts very light. Sales to jobbers: extracted, demand and movement slow, few sales; white sage and sweet clover, 29c per lb. Comb, demand and movement good; 24-section cases, No. 1 white heavy, \$7.00-7.25; fancy white heavy, \$7.50. Beeswax: demand slow, average yellow, 40-42c per lb.

Kansas City.—One California arrived. No cars on track. Supplies moderate. Demand and movement moderate. Little change in prices. Quality and condition generally good. Sales to jobbers: comb, Missouri, No. 1 light, \$8.50 per case; Colorado, No. 1, \$7.25. Extracted, per lb., Colorado, light, 25c; California light, 23c.

Minneapolis.—Homegrown receipts light. Supplies moderate. Demand and movement good. Sales direct to retailers: comb, Colorado, prices slightly higher; quality and condition good; 24-section cases fancy white, \$7.50. Extracted: Colorado and Min-

nesota, quality and condition generally good, 60-lb. cans, 27½c; 10-lb. cans, 30c.

St. Paul.—Homegrown receipts light. Supplies moderate. Demand and movement moderate. Sales direct to retailers: comb, Colorado, prices slightly higher; quality and condition good; 24-section cases fancy white, \$7.50-8.00. Extracted, Colorado and Minnesota, quality and condition generally good; 60-lb. cans, few sales at 30c.

Chicago.—One Utah, 1 Colorado and approximately 300 packages by freight from California arrived. Extracted, supplies moderate; demand slow; movement draggy; prices slightly lower. Sales to jobbers: western, white, 24-25c; amber, best, 23-24c; quality and condition fair, 20-22c. Comb, supplies light; prices higher; 24-section cases, No. 1, mostly \$7.00. Beeswax, 35-40c per lb.

Philadelphia.—Total receipts: extracted, approximately 3,000 barrels Southern; approximately 150 cases New York. Comb, 250 cases Vermont, 150 cases New York. Very little trading. Slight improvement in demand. Few sales to manufacturers. Extracted, per gallon, Southern, \$2.35; Porto Rico, \$2.40.

Spokane.—No arrivals reported. Supplies light. Demand and movement slow. Very few sales account of high prices. Quality and condition good. Sales direct to retailer. Idahos: extracted, 5- and 10-gallon cans, white alfalfa, 25-28. Comb, white alfalfa, 24-section cases, No. 1, \$7.25; No. 2, \$7.00.

Cleveland.—Arrivals unreported. Demand and movement slow. Prices lower. Sales to bakers and confectioners: western, 60-lb. tins, white clover, 29c; light amber, 26c per lb.

EXPORT DISTRIBUTION OF HONEY FROM JULY 1 TO NOV. 20.

Total, 3,970,732 lbs.; to France, 492,301; to United Kingdom, 2,877,671; to Canada and Newfoundland, 575,599; to all others, 25,161.

Charles J. Brand,

Chief of Bureau.

Washington, D. C., Dec. 14.

General Quotations of Wholesalers.

[These firms are asked to quote the wholesale price they make to retailers. Accordingly their prices must be figured at least one profit higher than the price paid the producer. The large dealers do not quote prices in print that they will pay futuramente to producers.]

NEW YORK.—We quote from several of the leading honey dealers in New York City, date of Dec. 16, as follows:

"Import conditions are allowing large lots to arrive again of Southern grades. Exports are now being arranged for London accounts which will probably hold good qualities of extracted at today's levels in price. White extracted, we believe, will hold normal for present prices until Florida crops are ascertained. Comb honey seems slow at high prices. Comb honey, extra fancy, per case, \$9.00 to \$9.50; fancy, \$9.00 per case; buckwheat \$8.00 to \$9.00 per case. Extracted honey, white, 25-26c per lb., in cans; light amber, in cans 23-24c, in barrels, 22c; amber, in cans, 19-20c, in barrels, 19c."

"Honey is still on conservation list. No exports. West Indian honey coming in freely at \$2.25 a gallon, mostly for manufacturing purposes. Now that sugar is plentiful, look for lower prices all along the line. Am having more offerings from beekeepers now than at any time this season."

"Honey is quiet with a very limited domestic demand. There is considerable inquiry for export, but as yet it is impossible to make shipments altho it is expected that the steamship companies will soon be in a position to accept freight. This should benefit our market considerably. I quote today \$2.30 to \$2.40 per gallon for extracted."

"Strengthening owing to lifting of export embargo. Extracted honey, light amber, in cans, 24½c f. o. b. N. Y."

"Market firmer as looking for the export ban to be lifted any day. Extracted honey, white, per lb., 20-22c; light amber, in cans, 18c, in barrels, 17c; amber, in cans, 17c, in barrels, 16c."

"Honey is removed from conservation list. Look for strong market and high prices when exportation begins. Importation also allowed which will offset exportation somewhat. Extracted honey, white, 25-26c."

LIVERPOOL.—The market is in a disturbed state in consequence of the arrangement of the armistice. Every one is naturally in the dark as to the effect of this upon world prices of all commodities. According to the public reports which reach us from places in Belgium and Germany which have been reoccupied by the Allies, the general position of economic affairs would not appear to be so black as it has been painted. Of course, nothing can affect the position of the world's supplies of natural products until the next harvest. Now that the great wastage caused by submarine destruction is past we shall rapidly pass to normal conditions. Honey is notoriously high in price and we are afraid it must come down. Since our last report prices, if anything, went slightly higher; but now the market is on the easy side. For good extracted honey we quote 45 to 47 cents per lb. Californian sold at 46 to 47 per lb.; Argentine sold at 45 to 47c; Cuban and Jamaica sold at 44 to 45c; Chilean, no first hand offering; price nominally 44 to 45c.

The market for beeswax remains dull; for good quality we quote 48 to 50 cents per lb.

Taylor & Co.

Liverpool, Eng., Nov. 25.

ST. LOUIS.—No comb honey in this market. Extracted in only fair demand, but stock on hand is not large. Extracted honey, light amber, in cans, 21-22c; amber, 20-21c. Clean, average yellow beeswax, per lb., 40c.

R. Hartman Produce Co.

St. Louis, Mo., Dec. 16.

KANSAS CITY.—Our market is fairly well supplied with both comb and extracted honey. It is moving in a moderate way and no one is buying heavily, as they look for lower prices. Comb honey, fancy and No. 1, \$7.00-7.25; No. 2, \$7.00. Extracted honey, white, 25c; light amber, in cans, 25-27c; amber, in cans, 24-25c. Clean, average yellow beeswax, per lb., 35-40c according to grade.

C. C. Clemons Produce Co.

Kansas City, Dec. 17.

TORONTO.—Five and ten-pound tins of honey are selling at 28 to 30c per pound. The demand is light on account of the unusually high prices.

Eby-Blain, Ltd.

Toronto, Ont., Dec. 16.

HAMILTON.—We are getting many inquiries from people who have honey to sell, both light and dark. There is no demand here for dark and not much for light. Price seems too high for the trade. Hope the trade will be better after Christmas. Extracted honey, white, 27c.

F. W. Fearman Co., Ltd.

Hamilton, Ont., Dec. 16.

MONTREAL.—Good demand for honey. Clover honey rather scarce. Dark and buckwheat very plentiful. Demand for export is over for the present. Comb honey, extra fancy, 30c; fancy, 29c; No. 1, 27c; No. 2, 25c. Extracted honey, white, 25c; light amber, in cans, 22c, in barrels, 21c; amber, 20c, in barrels, 19c.

Gunn, Langlois & Co., Ltd.

Montreal, Can., Dec. 16.

SYRACUSE.—There is practically no comb honey to offer here. Extracted is moving slowly with a very light demand. Extracted honey, white, per lb., 28c; light amber, in cans, 25c; amber, 22c.

Syracuse, N. Y., Dec. 18. E. B. Ross.

BUFFALO.—Ever since taking off of restrictions on sugar, it seems everybody has got extracted honey for sale, and the market has been dead. Eighteen to 20c for the best extracted, and it goes slow at that. The market is bare of comb and it will bring 35 upon arrival for goods that will show up No. 1. Comb honey fancy, 35c; No. 1, 33c; No. 2, 30c. Extracted honey, white, 18-20c; amber, in cans, 18c.

Gleason & Lansing.

Buffalo, N. Y., Dec. 16.

CLEVELAND.—Comb honey is selling very slowly on account of high prices. The supply in our market, altho not large, is fully equal to the demand. Comb honey, fancy, \$8.25 to 8.50; No. 1, \$8.00; No. 2, \$7.00-7.50.

C. Chandler's Sons.

Cleveland, O., Dec. 16.

PORTLAND.—Honey market very dull and sluggish. Prices dropped considerably since last report on account of the taking off of sugar restriction. Some large stocks on hand. Comb honey, extra fancy, per case, \$7.00; fancy, \$6.75; No. 1, \$6.50; No. 2, \$6.25. Extracted honey, white, 24c; light amber, in cans, 20c; amber, in cans, 18c.

Portland, Ore., Dec. 12. Pacific Honey Co.

TEXAS.—Good demand. Supply limited. Comb honey, No. 1, bulk, 22c. Extracted honey, light amber, in cans, 20c. Clean, average yellow beeswax, per lb., 36 to 38c.

J. A. Simmons.

Sabinal, Tex., Dec. 18.

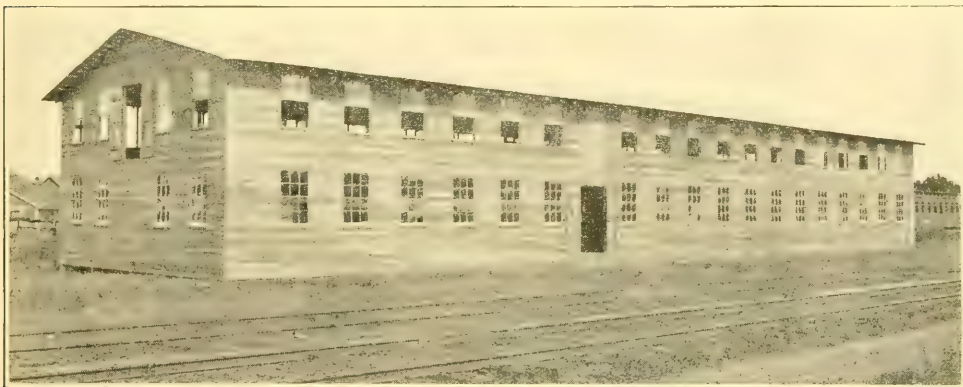
ARIZONA.—The price on honey has dropped owing to the sugar conditions which have loosened up. Clean, average yellow beeswax, per lb., 32c.

Phoenix, Ariz., Dec. 12. L. M. Lossing.

FLORIDA.—All the honey in this section has been sold and there will be nothing to offer before May.

S. S. Alderman.

Wewahitchka, Fla., Dec. 11.



WHERE CYPRESS HIVES ARE MADE

Mr. Beekeeper:—Let me send you my Cypress Catalog, explaining the merits of my Cypress goods and give me a trial order, and be a pleased customer. Prices are right and the hives are everlasting in any climate. A large stock of everything used in beekeeping. I am fully ready for orders and will appreciate them.

J. J. WILDER

WAYCROSS, GEORGIA

Season 1919 Begins

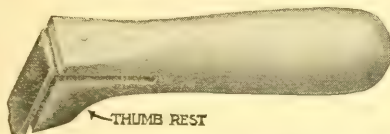


EASON of 1918 is now closed. Inventory taken and supplies ordered for Syracuse Branch for 1919. Where would I be next summer if I delayed getting in my stock till next May? For the last month I have had some orders from beekeepers that are wide awake, but I would be greatly pleased if more orders are received long before the time they will be needed. This will relieve me quite a lot next summer when the behind-hand ones begin to know they are in want of supplies.



F. A. SALISBURY
1631 WEST GENESEE STREET
SYRACUSE, NEW YORK

NEW BINGHAM BEE SMOKER



ware. Those who knew Mr. Bingham will join us in saying that he was one of the finest of men and it gives us much pleasure to help perpetuate his name in the beekeeping industry. Bingham smokers have been improved from time to time, are now the finest on the market, and for over forty years have been the standard in this and many foreign countries. For sale by all dealers in bee supplies or direct from the manufacturers.

	Size of Stove	Weight	Retail
Smoke Engine	4 x7 inch	2 1/4 lbs.	\$1.50
Doctor	3 1/2 x7 inch	2 lbs.	1.15
Two above in copper, extra, each.....			1.00
Conqueror	3x7 inch	1 1/4 lbs.	1.00
Little Wonder	3x5 1/2 inch	1 1/4 lbs.	.80

Bingham Honey Uncapping Knives with New Cold Handles

We are furnishing the same quality steel, best money can buy, thin-bladed knives that Mr. Bingham manufactured years ago. The old timers all remember these knives and many are writing in as Mr. Volstad in the following letters. The substitutes offered

by others have not given the satisfaction desired.

A. G. Woodman Co.

Gentlemen:—Have you the thin good-working uncapping-knives we used to get about 20 years ago, and that worked to perfection?

Lyle, Minn., June 21, 1917.

We sent an 8 1/2 and 10 inch knife and received the following letter:

A. G. Woodman Co.

Gentlemen:—Knives received; glad you sent them at once. They are just what I want and have been looking for but did not know where to get them.

Lyle, Minn., July 5, 1917.

K. H. VOLSTAD.

Many of the most extensive honey producers insist on the Genuine Bingham knives. Mr. N. E. France of Plattsville, Wis., gave us a fine unsolicited testimonial on the steam-heated Bingham knife, too long for this space.

	Weight	Price
8 1/2 inch blades.....	12 oz.	\$1.20 each
10 inch blades	14 oz.	1.35 each
10 inch blades, steam heated with tubing.....	20 oz.	4.00 each
Steam Generator, with safety valve.....	40 oz.	2.00 each
Double burner oil lamp stove.....	7 lbs.	2.00
Postage extra.		

TIN HONEY PACKAGES

2 lb. Friction top cans in cases of 24	5 lb. Friction top pails in crates of 100
2 lb. Friction top cans in crates of 612	5 lb. Friction top pails in crates of 203
2 1/2 lb. Friction top cans in cases of 24	10 lb. Friction top pails in cases of 6
2 1/2 lb. Friction top cans in crates of 450	10 lb. Friction top pails in crates of 113
5 lb. Friction top pails in cases of 12	

Write for prices on friction top cans and pails and 60-lb. cans, giving quantity wanted.

A. G. WOODMAN CO., Grand Rapids, Mich.

30 CTS. A POUND

Is what the British beekeeper has had to
pay in transportation charges alone, in
order to get DADANT'S FOUNDATION.

When shipping conditions became so acute last spring, it was very difficult to get ocean transportation for anything, and it was some time before the usual shipment of foundation to our agents in the British Isles could be dispatched, and then only at the phenomenal charge of 30 cents per pound to cover land and ocean freight, insurance, cartage, war risk, etc.

But even at that high rate, the beekeepers of the British Isles were insisting on being supplied with "DADANT'S FOUNDATION." They know what it means to get a pound or two more of honey in these times of sugar scarcity.

READ THIS LETTER

THE SHEFFIELD BEEKEEPERS' SOCIETY

Hon. Secretary—G. BARRATT.

Dadant & Sons, Hamilton, Illinois.

Gentlemen: I shall be greatly obliged if you will inform me whether there is any likelihood of getting foundation thru for the coming season. I do not intend to do without your foundation unless I am obliged to do so. If possible, will you please send me a supply by parcel post. I think the limit is 11 pounds. I want light brood, British standard size.

G. BARRATT,

Oct. 15, 1918. 546 Ecclesall Road, Sheffield, England.

But the original cost, plus 30 cents per pound transportation, is no object if the results obtained are proportionate.

The Secretary of the Sheffield Society is evidently one of those who gets the results. Why not do likewise? Transportation charges to the most distant points in the United States are only a small per cent of what our allies have to pay.

DADANT & SONS

HAMILTON, ILLINOIS

GLEANINGS IN BEE CULTURE

JANUARY, 1919

EDITORIAL

WITH THE WAR OVER and the restrictions on the use of sugar removed, it is time



Now for Some Comb Honey.

to suggest the production of some comb honey for the coming season.

Very rightly and patriotically the beekeepers of the country heeded the call during the war to produce extracted honey to the exclusion of comb honey, in order to meet a great food demand for sweets. This was not only right but profitable. Conditions are now changed, and comb honey should once more be given recognition, not only for its own excellence but to stabilize honey prices and relieve what may be an overproduction of extracted honey. To many consumers there is no honey like comb honey. Its attractive appearance, its unrivaled flavor, and its very stamp of the beehive give it a peculiar appeal. All beekeepers who have comb-honey equipment will serve themselves well and serve the future honey market well by producing comb honey the coming year.

AT SAN DIEGO, CAL., a lady at the close of the University short course in beekeeping



Seemed as if She "Got Real Religion."

said to Dr. E. F. Phillips and his staff that she felt as if she had just come from an old-

fashioned Methodist camp meeting where she had got real religion. She had enjoyed every minute of the course, had gathered new inspiration, and now felt that she could be a real and better beekeeper. Others expressed themselves in a similar manner. It was remarkable how the attendance kept up in spite of the flu, which was bad. The beekeepers sat clear thru the sessions, giving the closest attention.

The staff of instructors consisted of Dr. E. F. Phillips, Geo. S. Demuth and Jay Smith of the Bureau of Entomology, Washington, D. C.; Prof. Geo. A. Coleman of the University of California; M. H. Mendelson, a lifelong and extensive beekeeper; Frank C. Pellett of the American Bee Journal; and E. R. Root of Gleanings in Bee Culture.

The whole keynote of the course was better beekeeping and better beekeepers. In addition to demonstrations, theory, and practice, particular attention was given to bee diseases, their detection and cure. Foul

brood, European and American, has got a strong foothold in California. Considerable difficulty has been experienced because in many cases one disease has been confused for the other. Foul-brood inspection has so far been unable to hold the disease in check. It is to be hoped that these short courses will do much to clear up the confusion as to the two brood diseases.



A NEW YEAR AGAIN, and a new period in beekeeping. The great war now ended



Beekeeping in the New Year.

has touched and changed beekeeping as profoundly as it has many other interests and industries. Because of the world-wide shortage of sweets, the importance and possibilities in beekeeping have been brought to the attention of everybody as never before. So it is that the business of producing honey has been, in a way, dignified. The price level of honey has risen, never to return to the old low levels. With this bettered position of the honey-producer and of honey, comes a new impulse for better beekeeping. The better beekeeper—the good-business beekeeper—is already here; but more of them are on the way today than ever before. It is not going to be long till many honey-producers are going to conduct beekeeping as well and as wisely and as scientifically and in as business-like way as the successful stock-breeder of the corn belt conducts his business. The new year will see a greater advance along these lines than any of the years that have gone before. So it's a hearty welcome that the beekeepers of the world extend to 1919.



SINCE ARRIVING in California (from where this is written) the Editor of Gleanings



That New Metal Comb.

has been investigating, as he could, the aluminum-comb invention, originating with the MacDonald Artificial Honey Comb Company, Upland, Calif.

We find a general feeling out here on the Coast that this new beekeeping invention is full of promise. To say that it is (or can be made) a success would be premature. That bees have filled sample combs of it with honey and sealed it with their own cap-pings is proved by the specimens that were

on exhibition at the beekeepers' meeting recently held in San Diego. That queens have laid eggs in it and that bees will raise nice brood and seal it over is equally proved by sample combs that were shown at the same time and place. That bees will always fill it with brood or honey is claimed by some who have tried it, to be untrue. Indeed, as stated in December Gleanings, our own bees rejected such comb given them in late fall at Medina. Such a test at such a time, however, we would not regard as conclusive. The fact that bees and queens have used the substitute comb leads to presumption that the new all-metal combs when perfected may prove a success, so far as the bees are concerned. Whether the new article can be made a commercial success, that is, can be put on the market at a price that will compete with combs built from comb foundation, remains to be seen. The present price for 10 all-metal combs, Langstroth size, is \$6.00 f. o. b., Uplands, Calif. The makers believe that this price can be reduced when the present war price of aluminum reaches a more normal figure.

While the advantages claimed for the metal comb are not as yet proved, it would seem that actual tests might prove a part or possibly all of them. If so, will the public, assuming that they cost twice as much as wax combs, pay the extra price? Perhaps so.

In a future issue we shall have some illustrations showing the details of construction.

In connection with this subject of metal comb, it is interesting to know that Quinby succeeded many years ago in making artificial comb out of tin in which the queen laid and bees were reared. But Quinby's conclusion was that metal combs were impracticable because of weight and expensiveness. Aluminum for commercial uses did not exist in Quinby's day, else he might not have condemned metal comb as being either too heavy or too expensive. See "Quinby's New Beekeeping," edited by L. C. Root, pages 193-195. A. I. Root more than 40 years ago experimented with metal comb and found that bees would occupy the cells when coated with wax. L. C. Root in his revision of Quinby's work on beekeeping expresses his "belief in the future success of complete artificial comb."



VERY RECENTLY we were in a piece of woods down in a gully that we thought



Windbreaks
on all
Four Sides.

would afford an ideal spot for a winter apiary. The very day we looked over the loca-

tion there was a strong wind. Remarkable to relate, the sweep of wind thru this gully, in spite of the trees, was strong. The more we have studied into this matter of windbreaks, the more we feel that the fences used by R. F. Holtermann, entirely surrounding an apiary, as shown on pages 591

and 592 of our issue for October, are better than an enclosure of trees not closely placed. For example, a north wind could not glance up and then down and out. It will sweep over the top because there is no outlet on any one side.

The Holtermann fence is made of cheap boards 10 feet long, altho longer might be better. They are nailed upright on cross-pieces fastened to posts. His apiaries cover a **relatively small plot of ground** and are **surrounded on all four sides**, for the reason, we suspect, that south and east winds are sometimes as destructive as those from north and west.

Usually shelter on the north and the west sides has been considered sufficient. During the past winter two of our yards had an exposure from the southwest of a couple of miles, with absolutely nothing to stop the wind. In both there was considerable loss, and in one over half the covers were blown off, notwithstanding there was good protection on the north and the west. This blow was followed by a heavy rain that soaked into the packing and later froze. The result can be imagined.

For years we have noticed that where there is a long windsweep from the south or the east there were liable to be some losses; and we have come to the conclusion that it is almost as important to protect an apiary from the south and the east as it is from the west and the north.

Coming back to the form of fence adopted by Mr. Holtermann—upright boards nailed on to cross-pieces—it is cheap and effective. The boards should not be placed nearer to each other than half an inch. The theory of a windbreak is to break the force of the wind rather than to put up a solid slab against which the wind may glance and then curve downward. When a blast of air filters slowly thru an obstruction its force is broken.

As already mentioned, another secret of Mr. Holtermann's success is that his yards surrounded by board fences are **relatively small**. He usually selects an apple orchard and then surrounds it with his fence. The colonies are placed in groups of four; and this arrangement makes it possible to put a large number of colonies in a small space. When it comes time to pack, the hives are moved close together, in groups of four, six or eight inches apart and then packed.

We dare not tell you the big crops of honey Mr. Holtermann has secured. It should be made clear that it is not the location (which is good), but it is the man and his methods that really make these yields possible. If there is any one factor that has contributed to his remarkable success it is his good wintering, and no small part of that wintering is his scheme of windbreaks.

We are adopting the Holtermann form of fence; and where we have a long windsweep we have decided to protect all four sides—east and south as well as west and north.

AT one of the Ontario conventions some four or five years ago I told something about the possibilities of shipping bees without combs by

express to the North; and, when I intimated that it **might** be possible (I did not say it was) to make two pounds of bees without combs shipped from the South in April do as well as a colony wintered over requiring between 30 and 40 pounds of stores, the convention thought I was joking; and then when they found I was serious they "gave me the laugh." On the basis that the colony would require 40 pounds of stores, the price then being 12 cents in Canada, I figured it would cost in the neighborhood of five or six dollars to winter over a colony of bees. At the prevailing price of \$1.00 a pound for bees, without queen, we in the North could get, I figured, two pounds of bees and a queen from the South in early spring for about \$3.50. I went on to say that many a colony wintered over would not have two pounds of bees in the spring.

After my talk that day several came to me and asked if I was not a little wild in my assertions. When I said no, they seemed to feel I would be wiser some day. Well, the result was that a number of beekeepers thought enough of the proposition to try it out the following spring. For results of this, see *Gleanings*, page 744, for 1915, and page 108,

BEES IN POUND PACKAGES

A Comparison with Wintered-over Colonies. Results with Two Pounds Shipped North in Early Spring

By E. R. Root

left 17 nice colonies for winter. This actual performance went clear beyond my dreams, and he was a beginner.

In the mean time I began to talk the pound-package business in *Gleanings*. We shipped bees without combs all over the United States; and when the candy was made right, and the weather was not too warm, we could send them long distances.

About this time the beekeepers in the South began to advertise bees in pound-package lots in a large way. Thousands upon thousands of dollars' worth of bees were sold to beekeepers in the North. Some beekeepers reported most gratifying results. In the mean time the price of honey began to mount, and the demand for pounds of bees became greater. Then came the severe winter of 1917-18, when there were severe losses all over the North. This, of course, stimulated still more the demand for bees in package form. The result was that many of the package men were oversold. Others accepted cash orders when they should have returned the money.

A Remarkable Record.

The man who has kept the most careful record of the possibilities of a two-pound

for 1917. In the last reference C. W. Hellen, Markham, Ont., secured from 17 one-pound packages of bees, each with queen, 1,800 pounds of honey and had



Fig. 1.—One of David Running's outyards run for extracted honey. The bees in this yard were wintered in the cellar under the building shown in the background. The cellar referred to is the famous David Running cellar, mention of which is made on page 524, September issue, and in which there has been perfect wintering for the last 15 years.

package of bees received from the South and shipped North is David Running, Filion, Mich., president of the National Beekeepers' Association, and acknowledged to be one of the authorities on cellar wintering. If any man in all the United States could winter bees, to compete with bees in two-pound lots from the South, that man was



Fig. 2.—This colony occupying the five-story hive is one started from two pounds of bees received in the latter part of last April, at David Running's home yard. As will be seen by the general article, these two-pound packages received by express from the South went a little ahead of the colonies wintered in the North.

Mr. Running. The following statement of what he did was read before the Michigan State Beekeepers' convention last winter:

Twenty 2-pound packages of bees delivered at my station on the 27th of April cost \$3.25 per package at shipping point. The express charge was 27 cents each, and they were fed about 5 pounds of honey per package, which, at 17 cents per pound, would equal 85 cents, making a total cost of \$4.37 per package.

These 20 packages produced a total of 1,675 pounds of honey, or an average of 83¾ pounds per colony, which, at 17 cents per pound, would bring \$284.75, or \$14.23¾ per colony, making a net return of \$9.86¾ per package.

Ten packages delivered May 15, or 18 days later than the other twenty, cost \$3.00 at shipping point. The express charge was 37 1-7 cents per package each, and these were also fed about 5 pounds of honey each, which, at 17 cents per pound, would equal 85 cents, making a total cost of \$4.32½ per package or colony. These 10 colonies produced a total of 585 pounds of honey, or an average of 58½ pounds per colony, which, at 17 cents per pound, would bring \$99.45, or \$9.94½ per colony, making a net return of \$5.72 per colony.

You will notice from these figures that the packages received first gave me \$4.14¾ per package more than those which were delivered 18 days later, or an average of 23 cents per day for each package for the 18 days.

The Filion apiary in which these packages were worked also contained 50 colonies which were wintered in good condition, and which produced a total of 2,875 pounds of honey, or an average of 57½ pounds per colony, which, at 17 cents, would bring \$488.75, or \$9.77½ per colony. Now taking these 50 colonies to cost the same as the average cost of the 30 packages would bring them at \$4.32 1-6 per colony, which, deducted from the above \$9.77½, would leave a net return of \$5.45 1-3, or \$4.41 less than the average net returns from the first 20 packages received, and 27 cents per colony less than that secured from the last 10 packages.

There are two things brought out by this statement: 1. That the bees received from the South on the last of April did relatively much better than those received 18 days later. 2. That the two-pound packages received both on April 27 and May 15 yielded in the one case 26 more pounds of honey per colony, and in the other case one pound more honey per colony than those that were wintered over in the North. In this he exceeded my tentative statement at the Ontario convention.

Limitations of Pound Packages as a Bee-Supply Source.

It would hardly be fair to make this a basis of comparison between all bees shipped from the South the last of April and those wintered outdoors or in the cellar; but it goes to show that my "wild" statement made at the Ontario convention was not so wild after all. Remember I said I *thought* it might be possible. I did not say then, neither do I say now, that packages of bees in two-pound lots will, on the average, yield larger returns per colony than bees wintered



Fig. 3.—This picture shows a row of hives, the colonies of which came from two-pound packages received from the South, and which, according to David Running, held their own against bees that wintered in the cellar under the most favorable conditions.

over. But suppose these two-pound packages are a better investment than entire colonies wintered in the North, yet there would not be facilities enough in the South to take care of the Northern beekeepers if all these

Northern beekeepers were fools enough to extract all the honey away from their bees, brimstone them, and then expect to buy more bees with the money received from the sale of honey saved by not wintering those bees.

During these after-war times—when all kinds of shipments are badly congested—the Northern beekeeper should depend mainly on wintering just as he has been doing for years back, and use bees from the South as so much increase. When the price of honey is so very high—20 cents and more—he can better afford to run his wintered-over bees without increase than he can to divide them and run for honey and increase both. The

of fun and health going and coming, and learning something about increase in the South. If he succeeds he will be that much ahead.

Bees by Mail.

Now that bees without combs in package form are admitted to the privilege of parcel post under certain restrictions, it will be possible to get bees by mail in small lots. At all events, the express companies will have a warm competitor in Uncle Sam. This one fact will have a tendency to keep down express rates on bees; but it should be clearly understood, however, that the postal authorities assume no responsibility for safe arrival of bees. However, in many and

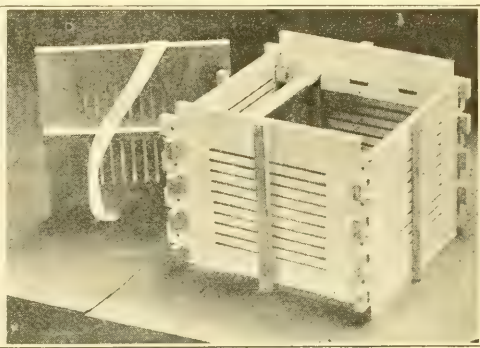
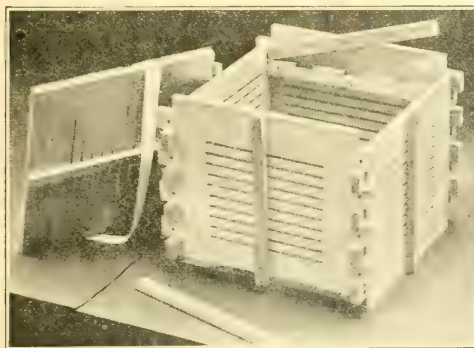


Fig. 4.—A package that Uncle Sam will accept for shipping bees by mail. It is made up of sawcuts slightly less in width than $\frac{1}{8}$ inch. These sawcuts on all six sides take the place of double wire screen, which is also permitted in a second type of cage.

time will never come when one can afford to extract all the honey from his bees, brimstone them, and buy more bees.

Another Possibility.

The beekeeper can, perhaps, afford to extract nearly all the honey from his combs, and, as soon as the bees have stopped breeding, shake them into combless cages, send them South by express, follow them to destination on the same train, unload them, and let them loose on the combs or frames of foundation at the receiving point. He can then run them for increase or honey or both. In April he can cage the queens, and, as soon as brood hatches, ship the original colonies and their increase to the North.

I am not so sure but one could take his regular truck, and, before the roads break up, shake his colonies into two-pound cages, make up a truck-load of three or four hundred, and arrive at some point in the South about a week later. In April or May following, the process could be reversed.

I hope that no reader of mine will enter upon either of these propositions on a large scale. Let him feel his way carefully. If one has a little Ford, let him try out the proposition of loading a hundred packages, putting them on a trailer, or, better, in a truck body made especially for the Ford. He could, perhaps, afford to lose a hundred packages and charge up the loss to a barrel

perhaps most cases the shipper will guarantee safe arrival. If the postmaster at destination reports the bees dead or in bad order, and signs a certificate to that effect, the

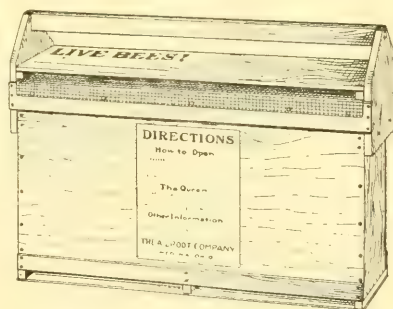


Fig. 5.—This is a package that has been used with the greatest success in sending bees clear across the continent without combs but on frames of foundation. Experience from the tests already made shows that on long distances the bees will draw out the comb, and the queen will lay eggs. In numerous instances we have had drawn comb and young larvae on arrival at Medina. See page 532, September

Gleanings.

shipper, in my opinion, should replace. If the shipper is not made responsible for arrival in good condition, he will be liable to become careless.

DURING times like these when it is the certain duty of us all to economize in the use of food, it is almost as important to effect a saving in

the cost of the package and in the labor of packing as to make a saving in the food itself, for providing the package to hold the food is a problem nearly as serious as that of providing the food. Those who are interested in making the shrunken dollar go the farthest will do well to consider the effect of the size of the package on the cost of the food contained in that package. While practically all foods are involved, since we are interested primarily in honey, we will confine our attention to the cost of several different sizes of packages for holding the product of the bees.

The accompanying table gives a record of the costs of honey in glass jars from three ounces up to two and one-quarter pounds, and in tin cans from the two-and-one-half pound size up to the gallon. Each is considered in lots of one thousand, in order to have a uniform basis for comparison. Since the costs of these packages are changing almost constantly no importance can be attached to these figures save in their relation to each other. In other words, it would be unsafe to base an estimate on cost figures for any one size of package today. The proportionate cost of the packages and labor for packing, however, re-

MOST HONEY FOR THE MONEY

A Great Difference in Percentage of Honey Received by the Purchaser Because of Size and Kind of Package

By H. H. Root

mains about the same. The honey is all figured at a uniform price of nineteen cents a pound.

A little study of this table, especially of the percentages in

the last column, shows conclusively how the proportionate value of the honey to the total cost of the package increases materially with the size of the package. In the smallest-sized jar the honey itself represents only 59 per cent of the cost of the package. In the case of the two-and-one-quarter-pound jar the honey makes up 86 per cent of the total cost of the package. The proportion is still greater in case of the tin cans. It is interesting to note the small cost of the labor and overhead expense in case of the five-ounce jar. This is partly due to the fact that this jar was handled in such large quantities that the labor was greatly simplified, but primarily to the fact that no label had to be put on, the cap being lithographed.

In the accompanying diagram the shaded portion represents the value of the honey compared with the total cost of jar or can. In other words, since in the smallest-sized jar the cost of the honey is 59 per cent of the total cost, therefore the shaded portion is just 59 per cent of the whole diagram, the unshaded portion representing the cost of the package, the labor, overhead expense, etc. As the size of the jar or can increases,

Cost Analysis of Various-sized Honey Packages.

1	2	3	4	5	6	7	8	9
Size of jar or can.	Pounds of honey.	Cost of honey.	Cost of jar or can.	Cost of labels.	Cost of labor and overhead expense.	Total cost of package.	Total cost of package and honey.	Per cent of cost of honey to total cost.
3-oz. jar	187.5	35.62	16.12	.44	8.39	24.95	60.57	59.
5-oz. jar	312.5	59.37	21.04	...	3.81	24.85	84.22	70.
6-oz. jar	375.	71.25	24.24	.44	7.70	32.38	103.63	69.
8-oz. jar	500.	95.00	31.96	.44	7.55	39.95	134.95	70.4
14-oz. jar	875.	166.25	36.34	.65	7.69	44.68	210.93	79.
2¼-lb. jar	2250.	417.50	46.38	1.65	19.04	67.07	484.57	86.
2½-lb. can	2500.	475.00	45.66	2.43	21.30	69.39	544.39	87.
5-lb. can	5000.	950.00	63.50	2.43	32.00	97.93	1047.93	90.6
½-gal. can	6000.	1140.00	93.50	1.37	33.60	128.47	1268.47	89.
1-gal. can	12000.	2280.00	170.00	2.03	63.33	235.36	2515.36	91.

Costs of various-sized packages of honey in thousand lots. The honey is all figured at 19c a pound. The first column, as indicated, gives the size of the glass jar or tin can. This figure multiplied by 1000 (divided by 16 in case of the first five items) gives the number of pounds of honey in one thousand jars, as in second column. This multiplied by 19 gives the cost of the honey alone as in third column. The fourth column contains the cost of the jars or cans, including the caps or covers. The sixth column contains the cost of the labor, also cost of power, heat, and other overhead expenses. The seventh column is the total of columns 4, 5, and 6. The eighth is the total with the cost of honey added. The percentages in the last columns are obtained by dividing the cost of the honey in column three by the total cost in column eight.

the proportionate cost of the package (including material and labor) decreases, and the proportionate value of honey increases. The increase is fairly regular, altho the percentage falls back a little from what gallon and gallon tin cans. This is due to might be expected in case of the one-half

the small screw-cap opening, making the labor of filling proportionately greater.

This may not be interesting to all beekeepers; some are concerned only with the problem of production. And yet, the proper disposition of a crop ought to be just as interesting as the production of that crop.

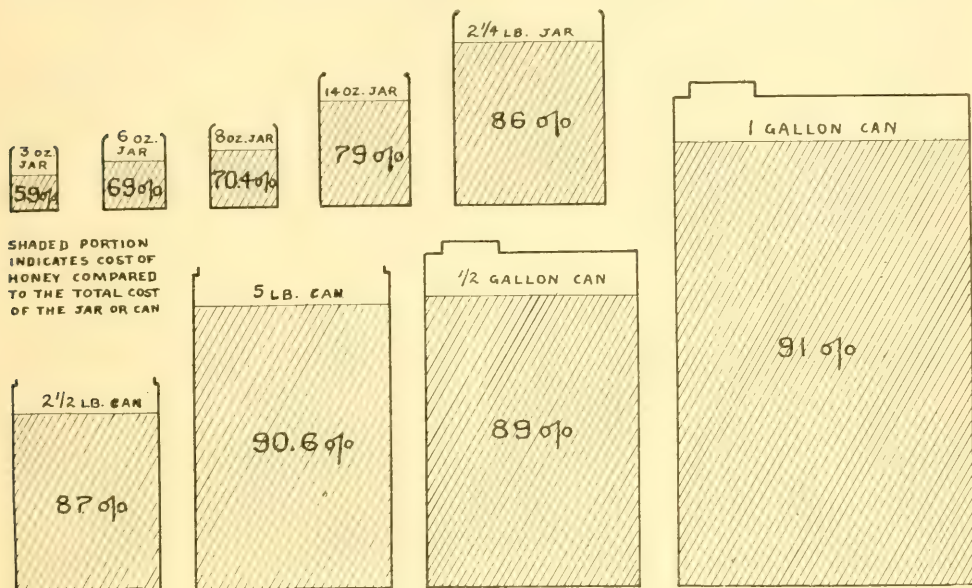


Diagram showing relative value of honey and container. The shaded part represents the value of the honey (percentage of honey value marked) while the unshaded parts represent the proportional cost of the container. Note how very much larger is the proportional cost of the container in the small sizes.

THE means of distribution of pear blight, or fire-blight, or twig-blight, as it is variously called, has long been a mystery and still remains

more or less of a mystery, in spite of the fact that many scientific articles have been published concerning it. Recently, a number of articles have been written upon the subject the sole object of which seems to be to connect up the honeybee as the main culprit in spreading the disease in our orchards, and some of the results of experiments, which have been conducted along this line, would seem to favor this theory; yet, when all the facts are connected up, the bee usually has the best of the argument. Many people are prone to ignore facts and accept theory instead. For example, there are good orchardists who have so much faith in the theories which they have heard presented, or which they have

BEEES NOT PROVED GUILTY

Careful Review of the Known Facts Does Not Warrant the Conclusion that They Spread Fireblight

By Prof. J. Troop

read about on this subject, that they would not allow a bee in their orchards, if it were possible to keep it out. The fact is, about all the evidence

we have on the subject is circumstantial, and that is very often far from reliable. It is well known that bees visit apple and pear blossoms for the purpose of obtaining pollen and nectar, out of which they make food for the young bees, storing the surplus honey in the hives for future use. Soon after the visits of the bees to the flowers, possibly indications of the blight begin to show themselves; therefore, according to the reasoning of some, the bees must have introduced the germs, regardless of other possible causes.

This reasoning is very much like that other fallacy; viz., that bees destroy ripe fruit, because they have been seen working like troopers gathering the juice and carry-

ing it to their hives. Wasps and English sparrows, the real culprits, were not caught at it; hence they go scot-free. Unless our theories will coincide with the facts in a case, they should not be given too much prominence.

At the annual meeting of the American Association of Economic Entomologists held at Columbus, O., in December, 1915, Professor Gossard of the Ohio Experiment Station gave the results of a series of experiments, in which he showed that the germs of fireblight (*Bacillus amylovorus*) would remain alive in honey as long as 47 hours, which would give ample time and opportunity for the bees to carry the germs, which they might have attached to their legs or proboscides, to the apple or pear blossoms during their periodical visits. He says: "A fresh culture of *B. amylovorus* was inoculated into a tube of unsterilized honey and incubated there from 4 to 47 hours. At the end of the 4th, 28th, and the 47th hours, inoculations were made from the infected honey directly into the tips of apple shoots. These inoculations gave 84, 64, and 52 per cent of infection, respectively, as against 0 per cent, in the checks kept for comparison. These tests prove conclusively to us that the blight organisms, in honey, can remain sufficiently virulent for 47 hours to produce infection, with the extreme time-measure of virulency probably not reached. Tests of this kind were made with fresh apple honey and also with well-ripened honey taken from the hive in mid-summer, and the results were substantially the same."

Quoting further from the same article, he says: "It is evident from these results that the formic acid of honey is not immediately fatal to the blight organism, and, while we may guess, from the fact that we could get no infection after a certain limit of incubation, that the bacilli simply survive for a time without multiplying, we are unable to reject entirely the possibility of their multiplying in the comparatively raw nectar when it is first carried into the hive and has undergone but little of the curing process. Anyhow, we believe we have proved that if one bee carries 100,000 bacilli into the hive one day, that on the following one or two days, each of 1,000 bees has the possibility of carrying a considerable fraction of 100 virulent bacilli out to fruit blossoms, because practically all the bees in the hive are at work during the night curing the honey. This would seem to go a long way toward explaining the wholesale infection that occurs in the latter part of the blooming period. However, it must be remembered that this surmise, as yet, rests upon inference alone."

These results would be very conclusive if it were not for that little word IF. The germs of the disease may be placed in honey and kept alive for some time, but there is no evidence to show that the germs were actually carried into the hive by the bees,

nor that any were carried out by them on their periodical visits to flowers. It seems to me that one, and perhaps the most important, point has been overlooked in this discussion, or else the writers have taken it all for granted; and that is, granting that the bees do get the bacillus in honey, or from some other source, and carry it to the flowers which they visit, and so inoculate the nectar, how do these germs get into the circulation of the sap? Does the nectar furnish a medium in which they will grow and penetrate the epidermal cells, and so get into the circulation, without further assistance, or is it necessary for them to be artificially introduced by some foreign agent? Almost every orchardist knows from experience that he can inoculate a healthy branch with the blight virus by the simple prick of a needle which has punctured a diseased branch, but the needle must actually puncture the bark in each case, in order to be effective. Now, the bee, in securing the nectar, does not break the skin or epidermis, but simply reaches down and sucks up the nectar. How, then, is it going to introduce the virus into the tissues of the branch, even tho it may have it on its proboscis at the time of visiting the flowers. If, as some authorities have supposed, the nectar is secreted by glands which have no epidermal protection, in other words, which have a direct connection with the tissues and circulation, it is easy to see how the virus might enter the circulation thru the nectar; but, so far as I am able to ascertain, no actual demonstration of that fact has ever been made, and until it is made, there must remain a doubt in the minds of many as to whether the bee is responsible for the trouble or not. In this connection, I quote from an article written by Prof. J. H. Merrill, Assistant Entomologist, Kansas Agricultural Experiment Station. He states that, "before the blight can be transferred from flower to flower some agency must transfer the bacteria from the canker to the blossom. The bee would take no part in such a distribution as it passes directly from flower to flower without alighting on the branches, and thus it is hard to conceive how the bee could in any possible way transmit the bacteria from the canker to the flower." He further states that, "the wind probably plays little or no part in the dispersion of the bacteria."

In an article in Science, Nov. 1, 1918, entitled "Pear Blight Wind Borne," the conclusion is reached from facts given, "that there must have been some agency of dispersal other than insects, and that insects were not even of primary importance as carriers. The only tenable hypothesis is that wind was the chief agent of transmission." Here we have just the opposite conclusion of that expressed by Professor Merrill. It is evident, therefore, that there is still room for investigation along this line.

But we all know that the apple aphid, *Aphis pomi*, makes its appearance quite

(Continued on page 60.)



STAGE FOLK, TOO, ARE BEEKEEPERS

How Hanson & Drew Enjoy Their Vacations Keeping Bees in Michigan

"Stage folks," too, can enjoy bees and succeed with them. In fact, their usual summer vacation period just nicely meets the time requirements for caring for the bees. And what a joyous good time my husband and I have, caring for our pets in the good old summer time!

Our vacations are spent at East Jordan, Mich., in a real bee country. We joined the Michigan Beekeepers' Association four summers ago while attending a foul-brood demonstration at Fuch's apiary in Wolverine, Mich. F. Eric Millen of the Michigan Agricultural College showed us how to get rid of foul brood. We had played Cheboygan the previous week, and beekeeper L. S. Smith there told us of the foul-brood demonstration to be held. We met Mr. Smith while in Cheboygan, and he was more than nice to us, exemplifying the generous spirit of the beekeeping fraternity in general. He invited us to his house on Sunday, when we had a very pleasant visit and talked bees and bees and bees. That was our first season with bees then. We had just bought two colonies about two months previously, and he gave us a lot of most valuable information.

This year we began packing our bees Sept.

12, and used Ira Bartlett's quadruple winter cases. Mr. Bartlett could not furnish us as many cases as we needed, so we made three more ourselves. We have 20 colonies of bees, and it took us five nights to pack. We packed four hives (one case) each evening, and got them packed Sept. 17. The equinoctial gales arrived in full force Sept. 18, and raged for several days; so we were fortunate in getting the bees packed just when we did. We stayed for the Charlevoix County fair, and took first and second prizes for comb honey. We left that place Sept. 28, and hope to return about May 12, next year. That was the date we returned to our Michigan play-and-work ground last year. It seemed just the right time to unpack the bees.

When Editor Root visited East Jordan last summer I think that Ira D. Bartlett told him of one of our hives that had been turned upside down during our winter's absence. It had evidently been that way all winter long. Mr. Bartlett righted it for us previously to our return in May (about two weeks before our arrival), and the bees still lived. The queen came thru in excellent condition, altho there were only about three frames of live bees found upon examination; but we frequently gave them more brood, and that hive produced four supers of comb honey. It was a colony that originated in a late swarm and was packed in a single packing case a year ago. I have



Mr. and Mrs. John T. Carlisle, stage artists, and their apiary in northern Michigan.

FROM THE FIELD OF EXPERIENCE

marked this hive by an X. It is beside the apple tree.

My husband and myself are known to the stage as Hanson & Drew—and we are proud to call ourselves beekeepers.

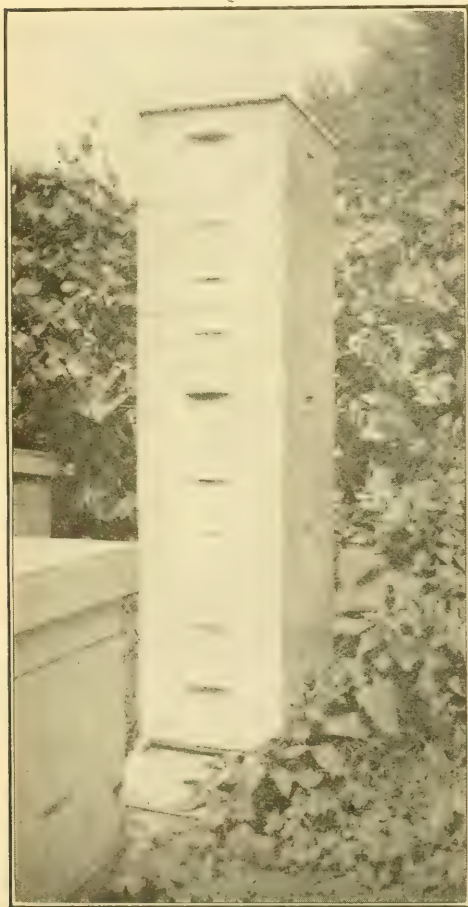
Mrs. John T. Carlisle.

Detroit, Mich., Nov. 18.

A JERSEY SKYSCRAPER

A Beekeeper Who Believes That the Honey Crop Can be Doubled

While this part of New Jersey is not an extra-good honey country, yet this year has been exceptionally good, our usual five-weeks' flow from the middle of May to the middle of June being reenforced by an un-



This colony filled two large supers after this picture was taken, making five large and five small supers besides the brood-chamber, making a hive $7\frac{1}{2}$ feet high (10 frames), equal to an eight-frame hive nine feet high.

usual gentle fall flow lasting two months. I am, therefore, sending a photo showing what a happy combination of locality, good season, good queen, good hive, and good beekeeper can accomplish when only a few colonies are kept.

A few years ago I had boats to let, and two fishermen from the city hired a boat for all day. They had all kinds of fancy lines, poles, hooks, and bait, and during the day they caught two small fish. That afternoon a boy from the town, with a sapling for a pole and a piece of white salt pork, caught a nice mess of fish in a couple of hours. What made the difference? That boy is now Harry Edsall, the owner of the hive shown in the photo, which produced 400 pounds of honey this year, while the colony of his next-door neighbor produced less than 10 pounds. What made this difference? The fisherboy used a bait that could be easily seen by the fish; put it in a part of the pond where there were some fish at that time of the day, and moved it around so the fish could not see what it was, and they grabbed it because it moved at just the right speed. The beekeeper put his bait just where he wanted the honey, and kept moving it just ahead of the demand of the bees. He watched the bees and knew what they were feeding on, and knew when the honey flow would begin and when it would stop. Then he knew from sad experience the necessity of a good queen, for two years before he had ten good colonies till European foul brood struck them, and then he had only two. So his queens are now all Italians from the best breeders.

As for the hive, just look at it and remember that the bees had to build half the comb from sheets of foundation. The hive is a regular standard hive with three full-depth supers and five shallow supers. Moreover, the colony has filled two full-depth supers since the photo was taken; therefore, in all there are five full-depth, five shallow supers, and one brood-chamber, making a hive $7\frac{1}{4}$ feet high, or the equivalent of an eight-frame hive nine feet high. Notice how level the hive is—no danger of falling over, and no props needed. The two next-best hives had 150 pounds of honey each. Can it be possible that a good queen can make all the difference between 150 and 400 pounds? If so, then this queen (honey at 25 cents) was worth \$62.50 more than any of the others, just as a honey-producer, in any year.

I feel sure that the honey crop of the United States could be doubled if all the beekeepers would get the very best queens, and add new ones every year. Let all despondent beekeepers troubled with foul brood take heart and get the very best Italian queens they can. In the last two years I have lost half of my bees by Euro-

FROM THE FIELD OF EXPERIENCE

pean foul brood, and this year I bought 36 queens for 30 colonies. Hereafter I expect to get 50 per cent more honey each year because of the experience I had with foul brood. So, cheer up, you European foul-brooders. Buy good queens and be happy.

Hammonton, N. J.

C. E. Fowler.

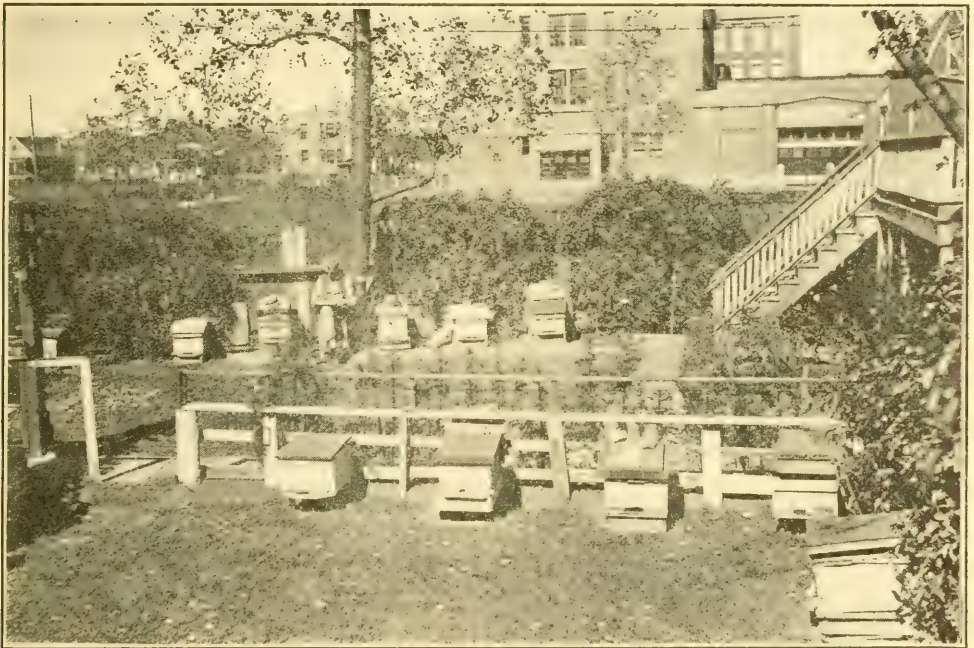
BEEES KEPT IN A CITY FOR YEARS

How a Trade Worker Has Loved and Kept His Bees Efficiently

My father, T. O'Donnell, is now 71 years of age, and has kept bees since he was about 15 years of age, inheriting the fondness for them from his father in Ireland, who also acquired his knowledge from his parents be-

distance (not more than 100 feet) at which they are located from a city school of 1,300 pupils, my father's home being at 815 So. Kildare Ave., Chicago. We have never had a single complaint from the school or the neighbors.

Scores of beekeepers, some amateurs and some very successful, residing within a radius of 100 miles from our home will recognize this apiary as the one which served as a "hotbed," as it were, for them to draw upon after one or more failures in their initial attempts to master the art of beekeeping. These men, no doubt, will give testimony to the fact that the old gentleman in the picture gave them many good, common-sense pointers to help them attain the success they now enjoy.



Mr. O'Donnell's apiary which has long proved a success altho kept within the city limits of Chicago

fore him. Altho working at a trade until one year ago, he has had as many as 52 colonies of bees, and seldom if ever lost a colony thru outdoor wintering. Every fall he has pursued the practice of filling the supers with dry leaves, hay, or straw, and placing them over the hive, also regulating the entrance by means of movable blocks to suit all changes of weather conditions. The hives are packed around the outside with hay and stand on their summer stands for the winter.

Some knowledge of the quietness of the bees can be gained by observing the short

Bee-veils and gloves are seldom used in our apiary, and it is interesting to know that about 90 per cent of our swarms have been hived by my mother while my father was at work.

It has always been my father's rule never to mind how much honey he gets, but how well are the bees supplied with it for their long winter rest. This only goes to prove that he has a natural fondness for bees, always with an eye to their comfort and progress, rather than the financial gain to be acquired thru them.

Chicago, Ills.

John C. O'Donnell.

FROM THE FIELD OF EXPERIENCE

THE FIRST WAX-RENDERING—OH!

The Man's and the Woman's View or this Interesting Calamity

Even Mr. Webster must have passed thru the vicissitudes of the first wax-rendering, because in his dictionary he describes wax as "A thick, viscid, tenacious substance, excreted by bees from their bodies and employed in the construction of their combs; its native color is yellow, and it has a peculiar smell resembling honey, which is derived from the honey deposited in the cells." Mr. Webster also speaks as follows of foreign substances in wax: "When bleached and freed from impurities, wax is white, brittle, and translucent in thin segments, and has neither taste nor smell;" but he does not tell us of what those impurities consist. That seems to have been the original discovery of the senior member of a recently established domestic firm of beekeepers, details of which may be found set forth in his diary under the heading, "Wax Rendering," tho the diary of the junior member also contains much valuable data.

His Version.

"Tuesday, October 12, 1915.—When old combs are broken for melting, there is so much dirt mixed with the wax that there is no use trying to separate it, unless the wax is tied up in a piece of strong cloth. After the free wax has melted and floated to the surface of the water, the mass in the sack should be put under pressure. This will drive out more wax, which does not float by itself clear from the mixed dirt. This dirt is composed of cocoons, quite a lot of dead bees, more or less propolis, and black stuff that I do not know how to name. When I melted the wax from some old frames I must have had three or four pounds of old comb, out of which I secured three-fourths of a pound of wax, and I melted it three or four times before I could get it free from dirt, altho the wax being lighter rises to the surface of the hot water and holds the dirt underneath it. When the mass hardens, the wax will be found fairly clean, but adhering to the bottom of it will be the dirt which can be broken off, in a measure, altho some particles will be incorporated in the under side of the wax cake.

"Old combs should be melted in boiling water to prevent the wax from burning, and the work should be done in an outhouse, and old clothing should be worn, because wax is very dirty and clings to clothes or leather or anything else it touches, but it can be washed off with gasoline or benzine.

"Since old combs yield not to exceed 25 per cent of their weight in wax, it does not pay to spend one's time in rendering them, unless one has from 50 to 100 pounds in combs and an abundance of free fuel, since

a lesser amount would not pay for the time and expense.

"Wax that is almost pure can best be melted in a double boiler."

Her Version.

"Tuesday, Oct. 12, 1915.—Declared a holiday for the senior member to take Cousin Sue, who is to remain another week, on a trip thru the valley, and washday for me, because I took her out yesterday. S. M. (Senior Member) rose at 6 o'clock and donned his paint clothes. It looked suspicious, and I reminded him of the proposed trip. He said, 'Plenty o' time; car leaves at 10:40,' and disappeared.

"8:30. Sweet sickening odor from kitchen. Investigated. S. M. in preoccupied mood, stirring a curious black mixture in my new granite kettle.

"8:45. Smelled gas. Investigated. Kitchen vacant. Mixture boiled over; flame extinguished; streams of black liquid trickling down the sides of stove to floor. Enter, S. M. Sulphuric fumes mingled with aforesaid odors, as he hastily emptied portions of mixture into large blue enamel boiler, re-lit gas and added more black material to both boilers. 'Rendering wax,' he volunteered as the sweetish odor pervaded the entire house.

"9:00. A third cooking-vessel brought into action.

"9:30. Mixture poured into my jelly bags and squeezed. Bags burst. Mixture returned to boilers for second melting.

"10:00. Cousin Sue in best black, patiently waiting. S. M., 'the world forgotten,' and, except for his immediate family, 'by the world forgot,' put the teakettle over the remaining burner. Remonstrated. Abstracted answer, 'in a minute.' Odor more nauseating. 'Men are all like that, just little boys when they are interested,' comforted Cousin Sue, from the wisdom of 70 years.

"10:45. Cousin Sue sewing strong canvas bags for wax. Car tooting farewell in the distance.

"11:00. Mixture boiled inside canvas bags (third time). Thin yellow coating on surface of water. Bags removed, pressed, and hung in picturesque rows on veranda railing.

"11:30. 'When do we eat?' from S. M., triumphantly skimming a few remaining flecks of yellow from the surface of water in boilers. 'No luncheon has been planned, and no place to cook it if it had been. You two were to lunch at the Inn,' I reminded him. And urged by the pangs of hunger, he set the boilers aside, made a swift toilet, called a jitney, and with Cousin Sue, caught the 12:10 interurban. Another proof that a man's stomach is a sure route to other sensibilities.

"4:30 P. M. Order restored. Results:

FROM THE FIELD OF EXPERIENCE

gas consumed, 80 cents; three boilers scrapped, about \$2 secondhand valuation; jitney fares, 50 cents; to say nothing of the loss of my jelly bags, all for a cake of wax that one could buy for 20 cents. Of course, that was not all. There was sufficient to wax the kitchen floor, had not the diabolical stuff been carried on our shoes to other parts of the house.

"My old doctor tells me there is nothing so restful to the nerves of a harassed woman as scrubbing. That may be true; but just between us, Old Diary Book, I have ordered the plumber to extend the gas pipe into the basement and attach thereto a gas plate."

These records disclose the fact that a wax-extractor was purchased for the remainder of the wax-rendering. The season's crop amounted to 20 pounds from the melting of old and broken combs, and the capings from 32 combs of honey—in all, 320 ounces. Allowing $\frac{1}{2}$ ounce each for the 32 combs extracted, or 16 ounces, would leave 304 ounces from 144 old and broken combs, or, 2.19 ounces each.

It is an interesting fact that difficulty was experienced in removing from the hives old dark-colored combs for melting, because the queen invariably used them for brood-rearing in preference to new clean fully drawn combs. The combs were finally removed by placing them over queen-excluders until the brood hatched.

Despite the dead bees, cocoons, propolis, and the dirt that the senior member was at a loss to name, the residue of the old combs, accumulated from the melting in the solar extractor, proved to be an excellent fuel. It makes a quick hot fire. It gives a flame like burning fat. It is especially useful as kindling, and while still damp from the wax-extractor, this mixture, known as slum-gum, may be put in small wooden boxes, pressed down and dried in the sun, and later chopped out in chunks when required for use.

So, even in the winter months, the cheerful glow from the family hearth is a continual reminder of one's erstwhile summer friends, the Honeybees. C. D. Stuart.

Los Gatos, Calif.



IS IT A SAFE PRACTICE?

A Mild Treatment for American Foul Brood That Has Proved Successful

In 1916 I wrote you that I had cured a colony of bees that was in the incipient stage of American foul brood, by cutting out the cells that were diseased. These cells were limited to three and all on the same comb. You wrote me to watch results next year, as I might not have removed all the infected honey, and the disease might break

out again. However, the cure was perfect.

Now, I am going to tell you another one that some of your most severe critics may object to before investigation.

It is generally conceded that American foul brood is the most dreaded of all the diseases that bees are subject to, not that it is hard to get rid of, but valuable combs and the benefit of that particular colony as a honey-producer for that year are lost. It certainly disheartens one when he finds a few cells diseased in a splendid colony of bees, thinking the only remedy is to shake them on foundation and destroy all combs in that hive. I am now going to tell you how I have absolutely cured four colonies diseased with American foul brood, with the loss of only the individual combs diseased, and I still retained the full use of these colonies as honey-producers.

Within a radius of one mile from my apiary there are many colonies of bees in lots of from one to five, about all diseased with American foul brood. Thru the kindness and vigilance of the State entomologist, we got busy and made a clean-up, and I had to keep an eye on my bees almost daily for a time to see that no disease was present. In early June I discovered that four colonies out of twenty were diseased, and, as the infected cells were confined to three combs each in two hives, and two combs each in two hives, I decided to apply the "nursery" method. This consisted in placing these diseased combs, bees and all (being sure not to take any of the queens), in an empty hive. This I did about sundown with as little fuss as possible. I then moved all the combs in the former diseased colonies close together, put in dummies on the sides, and closed up the hives. The next day the working bees of the newly made diseased hive went to their respective homes; but there were enough young bees left to take care of the unsealed larvæ, and within a few days this nursery hive was running over with young bees. As soon as all were hatched, I shook them on full sheets of foundation, and the trick was finished. The old colonies went right ahead as if nothing had happened to them, and piled up a nice surplus, and in none of the colonies did the disease reappear.

I have just finished taking a nice shallow super of honey from my nursery colony, which, I am sure, if added to the surplus I have taken from the old colonies, would bring the average up to normal. I allowed this nursery colony to rear a queen to suit themselves, and they have done a good job of it, for she is now laying well. In fact, this nursery colony is one of the very best in my apiary.

What have I gained by this "nursery" method? Let us figure a little. I lost only 10 diseased combs, instead of 10 diseased

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ones and 30 that were not diseased, or a total of 30 saved as against 40 lost. I have extracted a nice lot of honey from each colony, including the nursery colony, and gained one colony of bees. Had I applied the old method of shaking in June, what would I now have? I would have four colonies of bees that might have to be fed to get thru the winter. J. F. Knight.

Indianapolis, Ind.

[Some of our readers, especially foul-brood inspectors, might question the advisability of publishing this method of cure, for the simple reason that, while the plan is all right for experts, the average beekeeper, not carrying out the directions properly, would spread the disease rather than hold it under control. We were a little undecided what we should do ourselves. On referring the matter to Dr. Miller, he said: "The careless man is not likely to try it, for he will not discover the disease till well started; and, if he does try it, he can at the most only prolong the disease. The benefit to the careful man will outweigh the harm to the careless one."]

We believe that Dr. Miller is right, and therefore we are submitting the plan to the public. We may say that this has been tried before by some good beekeepers, and it has given excellent results. While it is true that the disease may appear in some other combs, yet, if the process is continued, American foul brood will be eliminated with little or no expense. It should be understood that, while this plan is good for a few stray cells that may appear, it will be wholly inadequate where the colony is badly infected. Nothing short of shaking on frames of foundation will suffice.—Editor.]



NOVEL MARKETING IDEA

Do the Work of Taking Comb Honey Out of the Super in the Presence of Customers

To retail a bit of comb honey, take an untouched super to a big factory that employs a lot of hands, and open it at the lunch hour. The work of getting out the sections will draw the crowd; and the business of breaking the propolis, a visible proof that you are opening the original package sealed by the bees themselves, helps give the crowd confidence that this is the real, unadulterated stuff. Women are best customers on the whole, tho men are more apt to take more than one section at a time. Most of what is bought will be bought to take home, but some will be taken for eating with lunches on the spot.

In such sales you naturally do not scrape the sections. Purchasers don't object to propolis under these circumstances, when they see for themselves that it is the seal

of the bees' packing and not an accidental defilement by human hands. At the same time, of course you sell better by making a lot of interesting talk about the bees and their work, and among this talk it is as well to get in something about the antiseptic varnish with which the bees cover all cracks in which germs might lodge. "Antiseptic varnish" is not only a better name for selling purpose than bee glue, but is really more truthful; for it is for the purpose of antiseptic varnish that the bees use it, not for gluing; the gluing effect comes incidentally, just as the same result comes from our own varnishes and paints. That we name it "bee glue" is a piece of the conceitedness of the human race, talking as if the important aspect were that which concerns our personal convenience. Give your bystanders scraps of propolis the size of an apple seed or smaller, and tell them to rub these between their fingers and then smell the delicious scent of the woods on their finger-tips.

The fact that you don't scrape the sections nor furnish cartons enables you to go just a cent or two below the grocer's price without being really a price-cutter; but I am not sure of your needing to do it, for you have a good selling proposition without any discount. The question will depend on your personal temperament. Don't go a nickel below the grocer. It is doubtful whether to make a difference in price between fancy sections and No. 1; but, if you have sections quite imperfectly filled, you give them a discount price proportioned to the amount of honey in them, and then they go off all right, especially to the customers who buy for eating with lunch.

Obviously this is primarily a method for the backlotter who can take this super to the factory where he works every day, where personal acquaintance increases everybody's confidence in his reliability, and who can leave the unsold part of the super there to meet the requests that will keep coming day after day from those who want another section, or who did not buy at first, but have now heard from somebody how good it was, and perhaps have been given a spoonful to taste. But I don't see why the large producer, if he has section honey, should not follow this method if he has business in town at such an hour as makes this convenient for him. If you sell at twelve and a half cents above what the wholesaler would give you (which is a low estimate for this year), and if in 60 minutes you sell a dozen sections (which even a bad salesman ought to do in his first attempt by this method, unless he had struck a very unlucky factory), that is \$1.50 for an hour's pleasant work, and you build up the public demand for honey.

Stephen T. Byington.

Ballard Vale, Mass.

A BEEKEEP-
er who
wants to
rear a few
queen-cells for
his own use
sometimes puts
in the center of
a colony having
a choice queen a

frame filled with foundation. After this is drawn out and filled with eggs, it is given to a queenless colony to rear cells upon. When the cells are completed it is annoying to find often two cells at one point, but on opposite sides, only one of which can be saved. A. Chenoweth gives in the American Bee Journal a way that nicely overcomes this difficulty, altho he does not give it for that special purpose. Take two sheets of foundation, place these together with two sheets of tissue paper between them, cutting the paper a little smaller than the foundation and pressing the edges together. When your cells are ready to cut out, trim off the edges of your comb and the two sheets will readily separate, so there will be no cells on opposite sides of the same comb.

* * *

A California correspondent writes: "On page 666, November Gleanings, you say, 'Breed from the best; kill all queens that fall below the average.' Now when is a queen poor?" He goes on to say that some queens start out with a rush and later slack up, while others reverse the process. Well, to decide whether a queen is poor or good, you must not judge alone by what she does in any one part of the season, but by what she does—rather by what her workers do—in the whole of a season. From that it follows that you cannot judge by what she does the year in which she is born, for the first part of that season's work is done by the worker progeny of her predecessor. But in the next year keep tally of every pound of honey taken in the whole season, and if it falls below the average you may count her a poor queen.

* * *

M. S. Phillippo writes: "It seems that those skyscraper hives would cause the bees to waste a lot of valuable time going up from the entrance to the top super of honey, for, as all beemen know, the bees will stop to finish all frames of honey by sealing over with wax parts of combs that are unnecessary. I believe that better results can be had by taking sealed brood from those extra-strong colonies and building up the weaker ones; besides, it is possible to have colonies that are too strong, the bees getting in one another's way by overcrowding. It must take a loaded bee a long time to travel thru a crowded hive up to the 4th, 5th, or 6th super." It certainly is good policy, under right conditions, to draw brood from strongest to build up weaker, but when skyscraping begins it is supposed that all are already brought up so that there are

STRAY STRAWS

Dr. C. C. Miller

no weak to help. Isn't it a mistake to think of a field bee carrying its load to the 5th or 6th super? If it carried honey there, wouldn't it also carry pol-

len, and do you ever find pollen carried to a 5th super? If I am rightly informed, the field bee dumps its load into cells in the brood-chamber, and then the young bees take the thin honey into their sacs and evaporate it by thrusting it out with their tongues, and while doing that they may just as well be promenading up into the top stories to deposit their loads there. I've never seen any striking proof that a colony was too strong.

* * *

I wonder if I couldn't do something toward bringing agreement in that little disagreement on page 729. Mrs. Demuth says a day came in late fall when every bee except the queen seemed to fly. Mr. Crane says, "I watched very closely last autumn, but saw no day when it looked as tho half of the bees flew out;" and the editor says it would depend on the lateness of brood-rearing. It might be this way: It so happened that in Mr. Crane's region there were a number of flight-days at frequent intervals, so that at no time did all the bees feel the need of a flight: in Mrs. Demuth's region it happened that for two or three weeks there was no flight-day, and when a warm day came all wanted to take advantage of it. That is, the longer the confinement the more bees to fly. Another year conditions might be reversed.

* * *

"Can Bees Hear? Who Knows?" heads an item by A. I. Root, page 739. One day, years ago, a swarm was beginning to enter a hive, if I am not mistaken returning to its own hive, but I wanted it to enter another hive I had placed for it. I moved the old hive to a new place, some of the bees of the swarm still calling loudly at the entrance, but in a little while the swarm found it, and began to enter. Quickly I set the hive on a wheelbarrow and started it to traveling about. So soon as it was on the move the swarm left it, but if I stopped it was not long till the swarm found it. I don't remember the outcome, but I know that the swarm found the hive every time I stopped. It could hardly be that the bees found the hive by sight, for we know their hive is lost to them if at any time moved a very few feet; and if they didn't hear the continuous call at the entrance how did they find the hive?

* * *

Iona Fowls does not agree with me that there is less danger of bees starving in winter in large hives than in small ones, page

743. I wonder, Miss Fowls, if we are talking about the same thing. I suspect you are talking about your bees under your management, in which case I agree with all you say, including your conclusion that "good colonies, if suitably packed, will winter on even seven frames," and I should hardly quarrel with you if you made it six frames, always supposing they were six heavy frames of honey. But when I am asked, "Is a ten-frame hive better than an eight-frame hive? it is not an experienced beekeeper like you who asks the question, but a beginner who is likely to leave the bees to their own devices in making preparation for winter. Suppose he has 50 colonies in ten-frame hives and 50 in eight-frame hives. It is pretty safe to assume that at the approach of winter each of the larger hives will have two frames of honey more than the smaller ones. In the larger hives the bees may become stranded at one side of the hive and starve, with plenty of stores at the other side. There is much less danger of this with the smaller hives. In the smaller hives the total amount of stores may not be enough to prevent starvation. There is much less danger of this with the larger hives. When a good colony dies in a ten-frame hive, leaving stores out of reach, I think it is the exception and not the rule. When a colony in an eight-frame hive has insufficient total stores, it is the rule without exception that it dies. When I had ten-frame hives it was a rare thing that a colony starved leaving honey in the hive. With eight-frame hives I have had seasons when, without any attention on my part, every hive was so well filled that not a colony was in any danger of starvation; and I have had so poor seasons, especially so poor in fall flow, that three-fourths of the colonies would have starved but for my interference. So taking the average beekeeper with 50 hives of each kind, in the average season, don't you believe that for every colony starving with honey in the larger hives two would starve in the smaller hives? I don't know, and will be glad to change my belief if you give me sufficient ground for the change. [If it is true that the average beekeeper does not see that his colonies are provided with sufficient stores for winter, then you are quite right in saying such colonies will winter better in the larger hive.—I. F.]

That "very exceptional wintering incident," as the editor calls it, is given by Eva A. Brown, page 722. My first impression on reading it was that the air in the cellar was below the freezing point all winter long, and bees wintered well there. It may not have been so bad as that. With the door from kitchen to cellar open most of the time, it may be that the air was above the freezing point without thawing the vegetables. Still it could not have been much above freezing. Well, if those bees had been on their summer stands, with a uniform temperature of

about 32 degrees, we would have considered the conditions quite favorable for good wintering. Why not in the cellar? Two reasons: the first being that the confinement in cellar was much longer than on summer stands, altho we don't know how much longer. The second reason why bees stand a temperature on their summer stands that they will not stand in the cellar is that the air is purer outdoors. In this case, with the door open between cellar and kitchen, the air could hardly have been very bad at any time, especially as we are told that the air could be felt moving in the cellar when the wind blew. So, barring the chance for flight on summer stands, why shouldn't these bees winter well? No doubt the editor is right in calling the case "very exceptional," and I suspect it is so because it is very exceptional to have air in cellar about as pure as outdoors.

In her interesting discussion of cellar temperatures, page 718, Belva M. Demuth springs something new—at least it's new to me—when she tells us that the temperature of the cellar should be lower toward spring than earlier, because the uneasiness of the bees at the later time makes them raise the temperature of the brood-nest. No doubt she's right, and it complicates things. She doesn't say just how many degrees warmer, and I don't suppose there is any definite figure that will apply to all cases. Anyway, it will be a varying factor, gradually getting lower the longer the confinement continues; and, I suppose, if we keep the bees under the very best conditions the difference between the beginning and the end of winter need be but a few degrees, while it may be very much more if conditions are bad and the bees become very uneasy.

Will there ever be agreement as to best temperature for bees in the cellar? American Bee Journal and Gleanings say 40 to 45 (altho the former thinks it might reach 50 in the middle of the cellar or between hive-rows); Mrs. Demuth thinks somewhere between 45 and 55; and Dr. Phillips says 50. Even if you knew exactly the right point, don't forget that thermometers vary a good deal. Find out at what temperature bees are quietest by your thermometer in your cellar, and then try to hold it there, keeping in mind that Mrs. Demuth says a lower temperature is needed toward spring.

I keep a thermometer in the cellar just inside the door that enters the bee-room, at a convenient height for ready reading. I've just been down cellar, and at that point the temperature was 54 degrees. In the middle of the bee-room, at the floor it was 55, and 58 at the ceiling. It makes a difference whereabouts your thermometer is in the cellar.

THAT article by E. R. Root, page 715, November Gleanings, is of unusual interest. The possibilities of a large hive seem almost unbelievable; but

one or two thoughts that do not appear on the surface attracted my attention. One is that honey heated soon after it is extracted does not readily granulate. If heated before it has once granulated, it will remain in a liquid condition much longer than when heated after it has once granulated.

* * *

A good many objections have been raised in Gleanings to the use of full-depth Langstroth frames for extracting, on account of their weight. I think we may guess with considerable accuracy what Adams and Myers think of shallow extracting supers. [In Gleanings the advocates of the shallow supers and of the deep ones have both been given a fair hearing, and it seems to us that certain conditions require the shallow supers, while others quite emphatically demand the deep. Among extensive fruitgrowers, we hardly question that the deep super would have the preference.—Editor.]

* * *

"In feeding sugar syrup, without any mixture of honey, shall tartaric acid (a level teaspoon for every 20 pounds of sugar) be used or not?" asks Dr. Miller, page 727. Certainly not. The mixing of honey or tartaric acid with sugar syrup to prevent granulation is no more necessary than the blowing of horns or drumming on tin pans to make bees cluster when they swarm. Some one made a big racket when the bees swarmed; and they clustered, and, surely, it was thought to be a good thing. Some one used acid or mixed honey with sugar syrup and fed to bees, and the syrup did not granulate, and the acid or honey was thought to be necessary. I suppose I have fed more than 50,000 pounds of sugar during the past 10 years without the addition of a pound of honey or an ounce of acid to prevent granulation, and I do not see that the syrup granulates any more than when I used honey or acid. It will sometimes granulate a little, but not nearly so much as the pure honey does. The bees have a little trick of making some change in the sugar syrup that very largely does away with the tendency to granulate. I don't know just what this change is. Perhaps they add the necessary acid. To find out just what change the bees make in sugar syrup would be a nice little problem for the Bureau of Entomology of the U. S. Department of Agriculture.

* * *

J. L. Byer, page 737, inquires if any one has had any experience in feeding raw sugar

SIFTINGS

J. E. Crane

to bees. Some 10 or 12 years ago (on the recommendation of Mr. Morrison, I think) I fed two or three tons of raw sugar, and found that the bees fed with it

wintered fairly well. Yet I came to the conclusion that granulated or refined sugar was to be preferred.

* * *

That is good advice B. F. Kindig gives the Michiganders, when he advises packing snow around the hives during the winter—only do not pack snow against the entrances. Better place a board leaning against the hive so as to protect the entrance and keep it open. Nature has most wonderfully provided for keeping the earth and everything near it warm during the cold months of winter. The trees drop their leaves, and then comes the soft, fluffy snow full of air (the best non-conductor of heat or cold), and the earth is as surely protected by the snow as animals by their fur.

* * *

Under the heading, "Let Us Be Honest," is the statement by the British Bee Journal that the reputed pound-bottle or 14-ounce bottle should be eliminated. (See page 744.) I think we are a little overnice in our notions of honesty and fair dealing. There is nothing dishonest in selling 14 ounces for 14 ounces. We put up honey in eight or ten different packages, running from 3 ounces to 60 pounds, four of them weighing less than a pound.

* * *

Stancy Puerden hangs up a looking-glass, on page 730, in which we can see ourselves in a rather ridiculous way. She says, "There are some people who can apparently with better grace give up their sons to fight than they can change their habits of eating." How better can one tell how far they have advanced from the animal to the angel than thru their appetites and affections?

* * *

Thanks to Yasuo Hiratsuka, page 724, for his account of those great and terrible hornets that infest the land of the "Rising Sun." Great, indeed, must be the courage of Japanese beekeepers to attempt to keep bees where such an enemy exists. Ugh! I am glad we do not have them.

* * *

The Ontario Agricultural College at Guelph, Ont., is fortunate in securing Burton N. Gates as Professor of Beekeeping. His heart is in his work, and he is sure to make good.

* * *

"The Home of the Honeybees" is to be congratulated as well as the whole State of Ohio, that at last Ohio is to be free from the curse of drink.

SHORTLY after peace was declared people began to make such remarks as this: "I was perfectly willing and glad to deny myself food to help win the war, but I shall not try to save one particle of food to help feed those Germans who sunk food ships, those baby-killers and murderers of innocent civilians, those Huns guilty of unspeakable atrocities."

Many, knowing my sentiments on food conservation during the war, have asked, "Do you think the Germans deserve to have food provided for them now?"

No, to speak truthfully, I do not. But I do hope the allied countries will see to it that they are allowed to obtain food for themselves, and for this reason, to preserve our own self-respect.

I think it was Clemenceau who recently said, "We are making war not on humanity, but for humanity."

And our own President Wilson said: "To conquer with arms is to make only a temporary conquest. To conquer the world by earning its esteem is to make permanent conquest. I am confident that the nations that have learned the discipline of freedom and that have settled with self-possession to its ordered practice are now about to make conquest of the world by the power of example and friendly helpfulness."

And the keynote of a speech made by Lloyd George was "Peace without vengeance."

Doesn't it thrill you with pride to contrast these utterances with those emanating from "German Kultur?"

Don't imagine I am a sentimentalist who would be in favor of letting the Hohenzollerns and military leaders, who are to blame for bringing all this horror and sorrow on the world, go unpunished. I hope they will be speedily brought to justice; but I do feel that if the victorious allied nations retaliated and sought revenge on the civilian population of the central countries we should be descending toward the level of the Huns themselves, and the lives of our heroes, who fought for an ideal, would have been sacrificed in vain.

But even if we should not wish to save food which might find its way into Germany, there are all our little allies which must be helped at once, the Belgians, Serbians, Roumanians, Greeks, Czechs, Jugo-Slavs, and others. Hoover tells us that out of the 420,000,000 inhabitants of Europe, practically only three areas, South Russia, Hungary, and Denmark, comprising some 40,000,000, have sufficient food supplies to last until next harvest without imports. Something

OUR FOOD PAGE

Stancy Puerden



over 200,000,000 of the people of Europe are in social disorder, which immensely increases the problem.

Last year we were asked to save food to win

the war, and we all know how wonderfully the American people responded, and how the food which went over to keep our allies from starvation gave them courage to keep on with the fight until our Americans reached there in sufficient numbers to fight shoulder to shoulder with the French and the English.

This year we should save two-thirds more food than we did last year, and we are to save food not to win a war but to prevent anarchy in a large part of Europe, for we are told famine is the mother of anarchy.

While we are all rejoicing that autocracy has been overthrown, perhaps forever, we must not forget that the Bolsheviki doctrines, if allowed to spread thru Europe like a pestilence, may prove to be more of a menace to the peace of the world than militarism.

THERE are those who are inclined to blame the restricted diet of the past year for the influenza epidemic which has swept our country like the plague, and which is still prevalent in so many localities. Now, I have no aspirations toward a Health Page, and when even learned doctors do not pretend to know why influenza sweeps the world in pandemic form two or three times a century, I am sure I do not. But, as I have urged food conservation ever since the war began and have published many recipes for the use of wheat substitutes and other war foods, I feel that a few words in justification of the war diet are proper in this department.

The Puerden family were fed just as nearly according to the Food Administration's suggestions as I knew how to follow them. When a friend once asked me if I practiced what I preached, I assured him I practiced more than I dared to preach. We ate wheat substitutes, especially quantities of corn-meal, observed meatless and wheatless days literally while they were in force, cut down on the amount of sugar, used fruits and vegetables and local products freely, to save shipping space, and simplified our diet generally in order to consume no more food than was needed to maintain health. Did our health suffer? It did not. We were never before so free from colds as we were last winter; in fact, not one of the family had a real cold. The children gained in weight faster than usual. This fall we have continued to be unusually well and entirely free from colds so far, altho we have all been exposed to influenza, some of us several

times. I am making no claim that the restricted war diet kept us free from colds. I am merely pointing out that it did not injure our health in the slightest degree, for freedom from colds is a pretty good measure of a person's resisting power.

Of course, it is quite possible that the entire family may contract influenza before the epidemic subsides, but in that case it seems probable we are in a condition to go thru it without serious results.

I wonder if I dare say something else before leaving the subject. I am not much afraid of editors, but dislike to be misunderstood by my Gleanings-reader friends.

We have all been saddened by the unbelievably long lists of deaths which have occurred in army camps from influenza and pneumonia. What makes it so hard to understand is that those deaths occurred among young and vigorous men, picked from the whole country as physically fit and robust, and living an active out-of-door life with plenty of nutritious food.

Physicians all tell us that pneumonia puts a fearful strain upon the heart. Also these same physicians assure us that tobacco weakens the heart. Permit me to quote a passage from "How To Live," a book authorized by and prepared in collaboration with the Hygiene Reference Board of the Life Extension Institute. This Reference Board is composed of some 74 of the most eminent physicians and health writers in the country.

The following is the quotation in reference to tobacco: "Disturbance of the blood pressure, rapid heart action, shortness of breath, palpitation of the heart, pain in the region of the heart, are important effects. Tobacco heart is often lightly spoken of because the abandonment of the habit will often restore the heart to its normal condition; but tobacco heart often causes death, especially under severe physical strain or in the course of acute disease, such as typhoid or pneumonia. Surgeons have noted failure to rally after operation in tobacco-users, who are, of course, deprived of their accustomed indulgence immediately before and after operation. It is probable that many such cases pass unrecognized."

Isn't it possible that the extraordinary prevalence of the tobacco habit among the young men of this country has been one of the contributing factors in weakening the heart and lowering the resistance to influenza and pneumonia? Many have commented on the fact that apparently more men have succumbed to the disease than women, and while there are a few ultra fashionables among women who smoke, the great majority of our American women and girls do not use tobacco.

Please don't think me a tiresome crank on this subject. I presume if I had been privileged to help in a Y. M. C. A. hut in France, I should have handed out cigarets with good grace. It was probably not the time to start such reforms among the fighting men.

But I am a woman and mother who desires the finest and best of everything in life for our brave American boys, and I cannot help regretting that so many are addicted to a habit which makes them less physically fit.

YOU have all heard of those who "strain at a gnat and swallow a camel." I have just discovered that refers to proofreaders. At least I imagine the modern proofreader is a direct descendant of ancient proofreading scribes. The camel the Gleanings proofreaders unwittingly swallowed was on page 730 where I made the astonishing statement that you should omit about one-fifth of a cup of liquid when you substitute a cup of sugar for a cup of honey. You see I was so joyful over the opportunity to call sugar a honey substitute that I quite lost my head. I should have said, "add about one-fifth of a cup of liquid when substituting a cup of sugar for a cup of honey."

PEAS, CELERY, AND NUT SALAD.

½ cup chopped nuts	mayonnaise dressing
1 pint can peas	½ lb. celery, cut small

Bring the peas to a boil, drain and cool and combine with the nuts and celery. Mix with a little mayonnaise dressing and serve on lettuce leaves, topped with a spoonful of the mayonnaise. Boiled dressing may be used, if preferred.

MAYONNAISE DRESSING.

2 egg yolks	4 tablespoons vinegar or
1½ cups oil	lemon juice
	1 teaspoon salt

Beat the egg yolks thoroly, add the oil drop by drop, beating constantly. As the mixture thickens, thin with the vinegar, in which the salt has been dissolved. Add oil and vinegar alternately until all is used, beating constantly. If the oil is added too rapidly the mixture will curdle, in which case it is necessary to beat another egg yolk and add the first mixture gradually to it. A regular mayonnaise mixer saves work and time, but it can be done with a Dover egg beater.

Now that olive oil is so high in price a very good mayonnaise may be made of any mild-flavored cooking oil, using two or three tablespoons of the olive oil for flavor. Have all the ingredients of the same temperature, and cold if possible.

MAYONNAISE FLUFF DRESSING.

To 1 cupful of the above dressing add ½ cup of stiffly whipped cream just before serving.

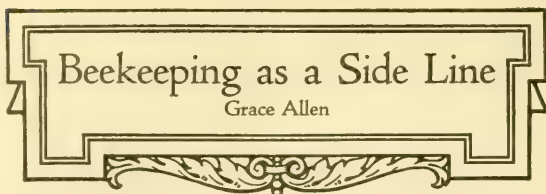
GRAHAM MUFFINS.

1 egg	1¼ cups white flour
2 cups thick sour milk	2 teaspoons soda
1 teaspoon salt	1 tablespoon melted
1½ cups graham flour	shortening

Beat the egg in the mixing bowl, add the sour milk and then sift in the two kinds of flour in which the salt and soda have been sifted. Use only enough of the white flour to make a rather thin batter. Add the shortening last, dip into hot, well oiled muffin or gem irons, and bake in a quick

(Continued on page 60.)

IT seems too late to do so, Miss Fowls, but I must add my welcome to the others. The delay is one of accomplishment only, not of mood. Ever since you gave the readers of *Gleanings* that able and enlightening account of the Fowls' adaptation of the Alexander method of increase, two or three years ago, I've been one of your admirers. (Nor do I object to a disputatious disposition!).



Grace Allen

chambers to one body. One and a half or two stories are becoming common for the year round. While others, wintering in two stories, place the queen

in the lower, under an excluder, at about locust bloom, leaving the bulk of the brood above, and seeing to it that there is plenty of room below.

* * *

How proud we may all be! I say "we," because all beekeepers claim A. I. Root and Dr. C. C. Miller as their very own. After reading about first one and then the other in the *American Magazine*, I felt just as personally strutting as tho they'd been—say my uncles, my two favorite uncles. But it was news to me about the music, Dr. Miller, and the connection with the wonderful Thomas Orchestra, and the roses and the gladioli. I believe I half knew it, tho, for the love of music and flowers would be native qualities of one who really loves bees, and dreams them and wants them a part of his life. Do you mind my admitting that you are one reason I am glad to be a beekeeper?

Then, recently, the general methods and the inspiring success of E. S. Miller of Valparaiso, Ind., were written up in the *Country Gentleman*. So altogether beekeeping and beekeepers have come quite prominently and favorably into the national limelight.

* * *

When E. R. Root says, page 715, December *Gleanings*, that "the big hive is certainly the proper thing for the fruit-grower or any other man who is operating some other line of business, and who wishes to work on the let-alone plan at certain seasons of the year," he is speaking pretty directly to a great many side liners. The hive, or method, or manipulation, that reduces the work necessary to the successful harvesting of a crop of honey is an advantage to all beekeepers, but quite especially to those who, for the chief part of their time, are busy on other matters, yet who wish to run their bees after such a fashion as to justify calling themselves progressive beekeepers. In this connection I recall Mr. Byer's remarks, page 737 of the same issue, to the effect that when he can eliminate any of the heavy work, he is glad to do so. Even tho the work be not particularly heavy, it takes time, and if we can find a way to achieve the desired result without doing the work, who will rise up to argue for the doing of it?

Returning to the question of the size of the hives, no longer do the majority of the beekeepers around here who have standard equipment already in use limit their brood-

I have recently been reading a little treatise by Ed. H. Clark, dealing chiefly with the problems of moisture, humidity, temperature, ventilation, and the evaporation and condensation of water vapor within the hive. To the lay mind that knows little of physics or natural philosophy, the array of terms and statements and tables is impressive. Yet, in its direct plea for ample condensation of moisture on the inside walls and cover of the hive, it is most unorthodox. Not that that in itself is against it, however. Only by somebody's coming out against established theories have new ones ever come in. But this particular idea seems somehow staggering. To set out with the deliberate intention of making a hive that is a good condenser, and "that would leave the condensed water where the bees could use it" is a new idea to me. Mr. Clark's practical conclusions, not particularly staggering of themselves, are that we must give the bees "a well-varnished inner surface to the hive, and a cover that, at no time, permits of upward ventilation."

My own experience with sealed-down super covers has not been encouraging, owing to the moldy combs in the hive in the spring. No such trouble having appeared in any hives where I used the so-called upward ventilation afforded by absorbent cushions, I am at present most favorably inclined toward absorbents. I think Mr. Clark makes no mention of the moldy-comb condition. Sometimes I have slipped a slender twig into entrances in winter, wiggled it around on the hive floor and had it come out wet and drippy. That certainly is a bad condition. But what brings it about? Many things might be contributing factors—the quality of honey, too much unsealed stores, syrup fed too late, propolized sealing of cover broken too late, besides weather conditions—the relation between temperature and humidity, and perhaps other things quite unsuspected. Condensed moisture in the hive is generally admitted to be undesirable, yet the majority of beekeepers prefer the sealed covers. It's an interesting subject, and I'm going to know more about it.

* * *

On page 733, December, I admitted feeling "no mood for side-line verses—nor, indeed, for side lines themselves." But I did

not say, honestly I did not "side liners themselves" as the uncontrollable little printed letters read! Always, I think, I am in the mood for side liners.

I once received a letter from a beginner saying that the reading of various articles by various successful beekeepers was exceedingly confusing and discouraging, as there seemed to be such a great difference of opinion among them, such a difference in conclusions after long studying the same problems. Whether this is more noticeable in beekeeping than in allied lines of general farming or stock raising, I can not say, but am inclined to think it likely. There are so very many things entering into beekeeping, besides merely having bees. Bees, after all is said and done, are not domesticated, and tho we may have learned somewhat of the complexities of their organisms, the mysteries of their psychology, and the laws of their reaction to environment, there is still much more to learn. There are many different things that affect them and their behavior, and the amount of surplus honey they store.

But one can scarcely blame my befuddled beginner friend. One group says that 10-frame hives are not large enough for wintering; another group says remove some of these 10 combs for winter, and make the bees really snug and comfortable. Some proclaim the dire necessity for packing, others scoff it. Some cry out against aster honey for wintering; others report continued successful wintering on aster. Dr. Miller says honey is unspeakably superior to sugar for winter stores; Mr. Byer says the reverse. Absorbents and upward ventilation have their adherents; sealed covers have theirs. And nearly everybody has a reason.

But, dear beginners all, it takes all the observation that can possibly be given the subject, all the study, all the reporting, all the comparison, all the patient deduction, and all the generous exchange of experience to get anywhere near the point towards which the industry is surely headed—the more complete understanding of a wild little insect and its ways under differing conditions. In this more complete understanding lie the beekeeper's profits.

* * *

It is Dr. Phillips who says, and the saying pleases the side liner: "It is probable that the larger part of our present professional beekeepers began as amateurs, rather than as farmer beekeepers, and, in all likelihood, the extensive producers of the future will be recruited from the suburbanites and nature-lovers who now keep bees for the enjoyment they get from them, with little present thought of future gain."

* * *

One recent Sunday evening, returning from a visit to a beekeeper who is working out a wintering system that I hope to write up soon, we found another well-known bee-man awaiting us here at home—Mr. Geo. W.

Williams, formerly of Somewhere in Indiana. (It's not a secret—I've just forgotten.) And what a good beekeeping, beekeeper, crop, price, war, and peace talk we did have! Mr. Williams is as much in earnest as ever about honey boosting, and is full of hopes and plans for honey production and the placing of honey in the class of eatables that is regularly planned on by the housekeeper, thus making it permanently profitable to produce.

* * *

We have often fed sugar syrup, one part water to two generous parts sugar, several times $2\frac{1}{4}$ and occasionally $2\frac{1}{2}$, with neither honey nor acid added, and have never experienced the slightest granulation.

* * *

GIFTS.

To Eugene Secor, the *Bee-Poet*.

"Oh, save not all your flowers for my grave,
Nor all your friendly courtesies withhold
Till I have gone, or grown, perhaps, too old
To care. 'Tis now I crave
The winsome grace and beauty of the earth,
And gracious gallantries and genial mirth."

Reiterant thru all our hurried years,
We hear (and make) this hungry human cry,
Till grateful hearts, forgetting to be shy,
Bring gifts of flowers or tears—
Or song perhaps, or some few awkward words
That flutter forth and fall like dumb dead birds.

I too would bring my loyalties and gifts,
And lay them, one by one, before the tents
Of those I most would praise and reverence.
(Ah me! my spirit lifts
Such flame of splendid purposes on high—
Then forges little fragile gifts, that die.)

This is for you. You will not put it by—
My little gift of semi-singing words,
My little flock of dumb, bewildered birds
That neither sing nor fly.
Thru timid silences or quavered notes
Your soul will feel the song in aching throats.

O Singer of bees and blossoms,
Yours is a kindly song;
Wherever it went, men's old content
Grew straightway young and strong.

Gay bees with their murmurous magic
Went humming across the pages—
Their haunting rapture, who shall capture
Thru the singing ages?

You sang of April's budding
And June in her shimmer and shine,
Revealing glint and glowing tint
And glamour, line by line.

You wandered the ways of beauty,
And we who would follow after
Find lifted veils along the trails,
And wings and living laughter.

O Keeper of bees, and Lover
Of flowers and books and song,
You have woven well, for the charm and
spell,
Still echoing, drift along.

When findeth Song its ending?
Song endeth never—never.
Its music and dreaming, heart-swaying, go
streaming
Forever and ever and ever.



FROM NORTH, EAST, WEST AND SOUTH



In Northern California.—During the first week of December the beekeepers of northern California experienced the best series of meetings ever held in this part of the State. Government experts and the editors of *Gleanings* and the *American Bee Journal* gave valuable talks. Practical beemen, among whom was Charles J. Edson, related their methods of practice. It was interesting indeed to learn how the Edsons produced more than 100 tons of honey each year for five consecutive years.

Manager Justice, of the State Exchange, threw his usual pep into exchange meetings. The Sacramento local exchange is gaining rapidly in membership. At the annual meeting the members elected Mrs. M. E. Engel of Chico as president, and Mrs. Cecelia P. Robinson of Esparto secretary-manager. The membership of the Exchange is very fortunate in securing the services of Mrs. Robinson, who, unquestionably, will show herself well fitted for her task. On the concluding day of the meetings the following spontaneous memorandum to the Dean of the College of Agriculture of the University of California was presented:

We, the beekeepers in attendance at the beekeeping short course at the University Farm, Davis, respectfully desire to present in this memorandum an expression of our wishes relative to further educational work in beekeeping. The present short courses provided by the University and the Federal Department of Agriculture have impressed us with the desirability of such work. We recommend: that there may be made the division of, or substituting for, the present correspondence course in beekeeping so that it shall deal with beekeeping topics and practical beekeeping; that additional courses, and, if possible, courses of longer duration in beekeeping, be provided in future years; that provision be made for such courses for both beginners and commercial beekeepers; that provision be made for continuous co-operative extensive field work in beekeeping for intimate personal instruction in beekeeping practice; that regular college work be given in elementary and advanced beekeeping with correlated courses in botany, bacteriology, meteorology, inheritance, and animal behavior; that comprehensive publications on beekeeping topics be published by the University, including a revision and republication of Richter's "Honey Plants of California." In order to save valuable time we request that provision be made for the routine diagnosis of samples of brood suspected of disease. This work now done by the Federal Department can not be reported upon with sufficient promptness because of the great distance.

When provision can be made it would be highly desirable to have investigations made on beekeeping topics especially applicable to California conditions. This might profitably include investigation of the unused honey resources of the State.

Respectfully submitted by authority of 135 persons in attendance.

(Signed) CHAS. J. EDSON, Secretary pro tem.

Modesto, Calif.

M. C. Richter.

In Southern California.—Weather conditions in southern California are, I think, very satisfactory, so far as predictions for a 1919 crop are concerned. We have had most rain, in fact, a good average for this time of the year. We have had considerable high drying wind, but we expect this over most of the southern part of the State in the fall of the year. Grass has not started much yet, but fruit buds are showing up well; and, if the beekeeper gets ready, I feel sure that he will be well repaid in next season's return.

During November and December in southern California the rearing of brood ceases entirely in the majority of colonies; in fact, only in those colonies having a very vigorous young queen can any brood be found. In inspecting a colony for signs of disease at this season of the year, about the only sure way is to look for the dried scales in the cells. If scales should be found, a close watch should be kept, and if the colony shows, at any time, a weakness in bees, it should be removed to a distance far enough away to make sure that no chance is left for other colonies to become contaminated by robbing. Unless the colony is strong in



"Kactus" apiary of L. L. Andrews, which is moved to get the orange and then back to the wild buckwheat. Martillija poppy is seen in the foreground.

bees, I feel that the best and safest way is to destroy the bees, render out the wax, and disinfect the frames and hive.

The writer was just talking to an extensive beekeeper who gave out the information that he had been looking over his apiaries and had found many colonies light in stores. These he had been feeding. He had left them all, so he thought, with plenty of honey for winter. Other hives he found with no bees at all, and, upon inspection, he found strong evidence of European foul brood. These colonies showed no signs of disease at the close of the honey flow. I combated this disease strenuously during the years of 1916 and 1917 in my apiaries, and during 1918 found almost no evidence of European but considerable American foul brood. Many of us out here in California are still open to conviction as to there be-



FROM NORTH, EAST, WEST AND SOUTH



ing two distinct diseases—American and European—even tho our government specialists are agreed that the two are quite different.

Twice the Orange Belt Co-operative Honey-Producers' Exchange has had to call off its annual meeting on account of the "flu." The last date set was Dec. 6, but, as the ban is still in force in Riverside, the meeting has again been postponed. This exchange consists of San Bernardino and Riverside Counties, and includes by far the largest orange-honey-producing territory of any exchange in the State. Orange honey is the very earliest of our California product and is often on the market soon after our Eastern friends take their bees from their winter quarters.

Last winter proved to be one of the mildest ever known in southern California. For just about one year no rain fell in our part of the State. The eucalyptus bloomed all winter and furnished honey abundantly. Anyone having bees near a large number of these trees found the hives getting heavy with honey in the winter. Some apiarists were able to extract considerable almost pure eucalyptus honey. The bees built up and were strong early in the season. Those who moved their apiaries or already were in reach of the orange groves reaped a rich harvest from that source. After some 20 years of experience, I never expect to see a better honey flow from the oranges than we had last season. December is none too early to begin getting ready for the orange honey. A colony short of stores now will be slow in starting to build up in the spring. There seems to be plenty of sugar available for bee-feed, and, from what I can learn, the beekeepers are quite generally availing themselves of the opportunity of feeding wherever it is necessary. Ordinarily, when honey was cheap, little anxiety was felt as to whether a colony got thru the winter safely or not; but now, with the high prices for the crop of the last two years, it looks as if we really owned something worth while in a few colonies of bees.

Perhaps California has experienced in the year 1918 one of the most satisfactory honey seasons in its history. The crop was not a large one; but all got some honey, and many a good crop, while everybody received a big price. Heretofore beekeeping has been looked upon by the great majority of people of moderate means as a side issue along with something else, or as a vocation for an old man, some one who likes to get a little easy money without much work. When some of the beekeepers who had been quietly goin on, "saying little but saving wood," as the old adage goes, began to deposit ten, twelve, or fifteen thousand dollars in the bank as returns for their honey crop, even the bankers began to sit up and

take notice. Honey production will hereafter be looked upon as a pursuit deserving a place beside other worth-while industries. Many are asking questions and becoming interested in the business. When some parties found that the writer had as much money invested in beekeeping operations as they had in a 10-acre orange grove, they were amazed. They thought that a few hundred "beehives" did not amount to anything, and that all a beekeeper has to do is to work a little during the honey season, take off the honey, and get his money—with nothing to do the balance of the year. Many are now willing to invest thousands of dollars in the business in the beginning; while those who have been making a success the past years, have worked up from a very small outlay. War conditions, together with the restrictions on sugar, have caused the public to use honey almost universally. Thousands of people who never used it before have found out that they like this sweet substitute, and they will hereafter use it regularly. People come to my place and hesitate about buying a five-pound bucket of extracted honey, saying that they do not eat much honey and that five pounds would last them a year or two. In many instances they come back in two or three weeks saying, "We all seem to like that honey, and it is so good for the children," and they continue to buy. These things all combined to make 1918 a most encouraging year for the southern California beekeeper. The future of beekeeping was never brighter than it is for 1919. We cannot expect to get the high prices of war times; but we are better satisfied with our pursuit, have a better standing among the industries, and are well content to make beekeeping our life work.

L. L. Andrews.

Corona, Calif.

* * *

In Minnesota.—On account of the prevalence of influenza the State Board of Health placed a ban on all state gatherings; and, consequently, the Minnesota beekeepers were not allowed to hold their annual meeting during the first week of December as planned. Instead the meeting will be held January 2 and 3, in connection with the annual short course at the University Farm—that is, if the ban is lifted in time. At this writing a second wave of the epidemic has struck Minneapolis, and over 20 of the schools have again been closed.

The outlook for the beekeeping industry in Minnesota is especially promising at this time. While harmony has prevailed among the various departments in the past, there has been a lack of teamwork. But now, largely thru the efficient work of our special field agent, Mr. McMurtry, plans have been worked out which, I believe, will result in much greater co-operation in the fu-



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ture among the Division of Bee Culture, Department of Agricultural Extension, Minnesota Beekeepers' Association, and the State Apiarist Department. These units will function as in the past, but under the new arrangements each will be an aid to all the others. Mr. McMurry's territory includes Wisconsin with Minnesota. Each alternate month is spent in this State. Beginning with January he will start work here under the new arrangements, and we trust that Minnesota beekeepers will rally to his support and assist him in every way possible. He is a man of large vision, and is rapidly getting a grasp of the problems and conditions of beekeeping in the Northwest. Chas. D. Blaker.

Minneapolis, Minn.

* * *

In Michigan.—Keep after your State legislators. At the coming session, let's try to have an assembly of men informed regarding the interests of the beekeepers. Information is essential in order to secure intelligent legislation.

Upon returning from a trip thru the northern counties of the State, Mr. Ewell, extension specialist, reported a large number of colonies outside without protection and with no prospects of any except snow. This is the usual thing all over the State. The time may come when all beekeepers will appreciate the necessity of adequate protection, but the time will never come when all will protect.

The superiority of the big two- and four-colony packing cases has been very evident here during the last 10 days. We have had some very bright but cold days. On such days the bees flew from the double-walled hives, and most of them were chilled before returning. But no bees were seen flying from the big packing cases. Surely, those bees which are quiet and remain inside during such weather are wintering better than those that fly out whenever the sun shines brightly.

As this is being written, the prospects for a beekeepers' short course at the College this winter are very good. The course would be designed specially for amateurs and would not be particularly interesting to the professional beekeepers. If sufficient interest is manifested in this course, it will likely be made an annual affair at the Agricultural College. It is proposed to hold it the latter part of March. Anyone interested should write the undersigned for particulars.

The postponed annual convention of the State Beekeepers' Association will be held in Lansing, Jan. 21-23. This date is final and will not be changed. Unfortunately, two Canadian and two Michigan beekeepers did not get word of the change in date and appeared in Lansing on Nov. 19. An in-

formal but interesting small-sized convention was held in the parlor of Hotel Downey. If a complete program is not in your hands on Jan. 1, write for one. The following is a brief summary of it. The president's address will be of special interest to every one and will be delivered at 1 p. m. on the first day of the convention. President Campbell will have a message which will be of very great importance to every beekeeper. Be sure to be on time for this. E. R. Root, C. P. Dadant, J. N. Harris, and others will discuss the subject of "Large Hives." J. N. McBride, State Market Director, will speak on "Co-operative Marketing." Hon. Geo. A. Prescott, Federal Food Administrator, will speak on a subject to be announced later. More topics and speakers are as follows: "The County Association," Miss A. Sly; "Two Queens in One Hive," Arthur Sharrow; "Combless Packages," E. A. Leffingwell; "Honey Resources of the Upper Peninsula," B. F. Kindig. Others will be announced on the printed programs. Headquarters will be at the Detroit and Kerns (Wentworth) Hotels. Place of meeting announced on programs.

B. F. Kindig.

East Lansing, Mich.

* * *

In Ontario.—Any worries I may have had about putting bees in the cellar are past for this year. If I must worry, my energies in that direction will have to be focused on when to take them out. The good friend at the Fenelon Falls yard who had agreed to put the bees in the cellar (bees are 70 miles away from my home) wrote under date of Dec. 5 that he put bees in cellar the week before, which would be the last part of November. Judging by weather here in York County, I think they went in at as good a time as could be had this past fall, for altho November was milder than usual, yet we had no real warm day that would give a thoro flight. The season to date (Dec. 9) has been favorable for outdoor-wintered bees, as we have had little severe weather yet—only a day or two with temperature of about 12 above zero for the coldest. Owing to abundant moisture and a mild fall, clovers have gone into winter season with a good top growth, and present prospects are that the clover in Ontario will be at least of normal acreage next season, provided the winter and the spring are favorable. By the term "clovers" I have rather in mind alsike principally, as it is the great yielder of honey here in Ontario. Of course, white clover yields some in many localities, but it is much more fickle than alsike. Then again, white clover, so far as my observation proves, rarely winterkills. The worst kind of weather for this plant usually occurs when we have a hot and dry August,



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the plants then being killed out root and branch.

A number of Canadian beekeepers have already placed orders in the South for combless packages of bees next spring, provided that prices are not too high. During the last few days some of the breeders have sent out their literature, and prices are certainly not low. Whether they are **too high** in comparison with the price of honey and other products is another question; but, I venture to say that should the tables be reversed and we were in the South, the chances are that we would quote just as high if in the package business. The disturbing part of the situation is not so much the price, so far as I can figure out; but it is a question of being reasonably sure of getting the bees delivered without heavy losses in transit, said losses to be borne entirely by the **consignee**. True, the shippers guarantee safe delivery when sending by parcel post, but on express shipments all literature that I have seen so far says emphatically, "by express, at receiver's own risk." While it is only natural that shippers are anxious to protect themselves against loss, on the other hand it is just as natural that purchasers desire the same protection, and I doubt if many will make very heavy purchases unless those conditions are somewhat modified. While bees will not be admitted into Canada by mail under present regulations, I understand that the matter is now under consideration of the postal authorities and that a decision is likely to be handed out in the near future. But granted that we get the same ruling as prevails in the U. S. at present, I fail to see how this will help the shipper out very much so far as guarding against losses is concerned, as the custom house ordeal will still have to be encountered. Granted that customers are assured of safe delivery by any means of transportation, and prices are not too high, I certainly feel sure that a great volume of business will be done next spring in combless packages of bees, as many beekeepers, both amateurs and professionals, are contemplating doing business in that line, provided the difficulties in the way are not too burdensome and risky.

I have just learned that the Ontario Convention will not be held till some time in January. No program has been received as yet, and so I am not sure of exact date. No doubt, the late date is accounted for by reason of the influenza epidemic that prevailed in Toronto and other places a short time ago, but which is now, happily, so far as Toronto and vicinity are concerned, almost a thing of the past. The late date will take away all excuse of being too busy to attend and we should have a bumper attendance.

I hope to be pardoned for once more referring to another frontispiece of Glean-

ings—that of December issue. The picture shown there is, I think, a companion picture of one shown a few months ago. My reason for referring to this matter again is because the pictures taken, of which these are some of the samples, were among my very first efforts at working the camera. I barely knew how to manipulate the machine, and yet the pictures of that first attempt are about the very best ever obtained with the machine, altho I have snapped scores since that January day some years ago up in the yard near Coldwater. Whether it was because of better films than can be obtained now or because I was more careful in getting correct distances, focusing, etc., I am not sure; but the fact is that I have rarely equaled and more rarely bettered the results of that first day.

In starting out another year, I wish to make a personal statement relative to the matter of answering correspondence that invariably follows writing for any publication. Usually I try to answer all letters; but this last summer, owing to being unusually busy and short of help at times, some letters were never answered. To such as received no answer I would ask your forbearance, and I promise to try to do better in the future. May all the readers of *Gleanings* have a happy, prosperous, and **peaceful** New Year. J. L. Byer.

Markham, Ont.

* * *

In Texas.—Mention has been made but once or twice in beekeeping literature of bulletin 685 of the United States Department of Agriculture. This bulletin, entitled "Honeybees and Honey Production in the United States," was issued last June. Now is the time of the year for reflection, for study and plans for the future; the time for soap-box politicians and stove-league-ball players. The basis for much of the discussing of this bulletin is the 1910 census, but the yearly crop reports are used to bring the data nearly up to date.

The portion of this bulletin pertaining to Texas is extremely interesting and should be carefully considered by every progressive beekeeper in this State. First, it is a matter of considerable pride that Texas is ranked as the first State in the United States in the colonies of bees, with 238,107 colonies. However, it is estimated that in 1918 this number had been reduced to 192,400 colonies. The causes for this very decided reduction is the first matter to attract attention and should be of great concern to all. We find that the data collected indicate a very great increase in loss by disease during the summer. This may be partly explained by the natural spread of American foul brood which is being reported each year over new territory as beekeeping methods improve and box hives are being discarded. As a matter of comparison it is shown that



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Texas suffers the greatest loss from disease of any State, Oregon being in second and California in third place. The winter losses suffered in Texas are certainly a surprise, as it has always been considered that in this State we had no wintering problem. It is shown that we lose one out of every four colonies in this way. While there are losses somewhat greater, nevertheless our losses are entirely out of proportion for the conditions. When the causes for this great loss are investigated it is found that a failing queen heads the list and starvation is second. These two items have received much consideration during the past fall, and it is indeed interesting to know that these assigned causes are backed by facts.

The honey-production data are very interesting. It is stated that during the five-year period of 1913-17 the average production per colony was 37 pounds. This estimated production gives a sum considerably more than it was ever possible to ascertain from trade estimates. In the matter of honey production Texas is comparatively low, due very largely to the low production of 1917. But such excuses do not justify a production as low as is shown. Of the honey produced 69 per cent is extracted, 22 per cent is bulk comb and 9 per cent is section. Texas has been considered a very large producer of extracted honey, but the tables show six States producing a larger percentage of their crop in this form. Even in this State there has been an increase each year in the proportion of extracted honey produced. Of the honey produced 33 per cent is classed as white, 38 per cent as light amber, 23 per cent as amber and 6 per cent as dark. In 1917 it is stated that 68 per cent of the honey produced was used at home and only 32 per cent was sold to markets outside of the State. There is shown an increased home consumption of honey. The price of honey had advanced but very little in the period under discussion.

The source of the honey in this State is equally interesting, and the distribution of the honey flora is shown to be as predicted. Of the nectar-secreting shrubs, mesquite 13 per cent, catsclaw 8 per cent, and quajilla 4 per cent, produce 25 per cent of the total crop. Cotton produces 24 per cent, alfalfa 11 per cent, and horsemint 19 per cent of our honey crop. Viewed from a state-wide standpoint these figures are very interesting and show a different balance of plants than is ordinarily supposed. As to the distribution of the honey-producing plants, it is shown that the south and the southwest sections with shrubs and horsemint produced two-fifths of the total crop. The west section with alfalfa as the principal source of honey produced one-fifth of the crop. The remainder of the State, given as central, east, and north, with cotton, horsemint, and miscel-

laneous plants, produced the other two-fifths of the honey.

After due reflection on this summary of a vast complication of figures, it should be the aim of every beekeeper to do his part in bettering the conditions and the production of this State. It was shown that losses were excessive—in fact, as bad as any State in the Union. Let each strive to put Texas again in first place in the beekeeping world, a place justly deserved.

Reports from every section point to the return of normal condition of the honey plants. In the late November the early spring flowers were up better than in April, 1918. The horsemint is abundant over all the territory of its range. Native plants, wild flowers, and trees have all been put in first-class condition by the fall rains. Those beekeepers who put their bees in good condition to go thru the winter are sure to have bees on hand for the spring flow.

H. D. Murry, well-known queen-breeder, has moved from his home in northern Texas to Soso, Miss. Here he will engage in the early rearing of queens. He expects to return to Texas in time to take up his work here.

F. B. Paddock.

College Station, Tex.

* * *

In Florida.—Right now, during the next three or four weeks, is the time for Florida beekeepers to take some action in their own immediate localities to avert a situation which has for the last four or five years been growing into what may at any time become a serious menace to their business. The manufacturers of insecticides are advertising and advising the citrus-growers to spray their trees while they are in bloom, claiming that by so doing they will secure brighter fruit, and that spraying will help the bloom to set. We, of course, know the fallacy of such claims, but are we doing anything to teach the orange-grower that spraying in bloom is not only a waste of money but also a detriment to his chances of a successful crop? It is true that so long as lime-sulphur sprays are used we have nothing to fear, for these only drive the bees away from the groves, and it is impossible to spray all groves on a location at the same time. Still we have no guarantee that lime-sulphur sprays will always be used; and it is always possible that a poison spray may be advocated and used by someone who has given no thought to the matter, and is led by the advice of those whose business it is to sell insecticides. With white fly as prevalent as it is this year, it may be advisable to warn the orange-growers against allowing any spray to be used on their trees which might be detrimental to the health of our bees. This may be a false alarm; I hope it is, but I don't know.

Apopka, Fla.

Harry Hewitt.

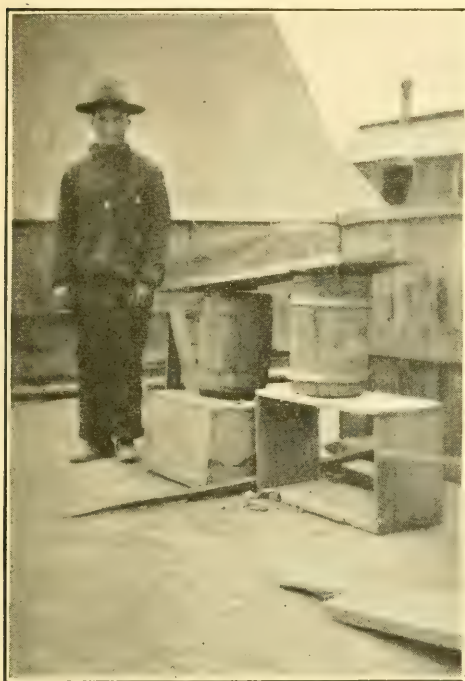
HEADS OF GRAIN FROM DIFFERENT FIELDS

The Bees and the Soldiers.

While stationed last spring at Camp McClellan, Alabama, the bee fever seized those of us who at our homes had been amateur bee-farmers, and our thoughts were often diverted from soldiering and "squads east" and "squads west" by reports that swarms of bees had been observed in some particular corner of the camp. At such times the most enthusiastic veterans of Langstroth frames and various kinds of smokers availed themselves of the earliest opportunity to find the alleged swarms. On May 27 there appeared to be an epidemic of swarming. One lot of golden-striped beauties had taken refuge in a pile of empty drainpipe quite near my tent, and

my own bees have had my attention, yet wherever I happened to camp I have been on the lookout for some of my pets. At Brownsville, Tex., in the fall of 1916, some most primitive hives were found and photographed. Over here in France so far but three colonies have been seen. They were in the province of Vienne, near Portiers, in August; and even the hives, like nearly all the buildings, were roofed with red tile. The bench on which they rested was perched on the rocks above the roadside along which I happened to be traveling.

Wm. D. Richardson,
No. 1,296,437, Sgt. Co. E, 104th Amm.
Train, American E. F.
France, Nov. 6, 1918.



The horseshoe soldier and his two swarms of bees safely hived in nail-kegs.

had lost no time in setting up housekeeping. Some small pieces of comb were constructed; but several days later these bees vacated their new house, leaving no "new address" at which they might be found.

But we had better luck with two swarms which one of our horse-shoers (Pyrhus D. Shelor) installed in a couple of old empty horseshoe-kegs. Both colonies went to work without delay, and before we were entrained for a port of embarkation they were safely transferred one night to a farm near by.

While my home is in Spottsylvania County, Va., and three summers have passed since

Foundation—Do the Bees Discriminate? Occasionally it is claimed that the bees will draw out one make of Weed Process foundation quicker than they will another make of the same process. Are the bees not governed by existing conditions as embodied in the foundation, rather than by a discriminating instinct that some claim for them? The human being may be led to believe that a certain brand of merchandise exceeds another brand that is identical in quality, and that is produced from the same materials by the same identical machinery in each instance; but the bees are not subject to human persuasion, and, therefore, not influenced in this manner.

We have carefully tested out the foundation of different manufacturers, our own included, as well as that of one manufacturer in particular who claims that the "bees take to theirs first," the tests being conducted in neighboring apiaries as well as our own. These tests utterly disprove any such claim. We find that the age and weight of the foundation used are foremost among the determining factors. If foundation fresh from the mills is used alongside of foundation that is several years old, the bees will naturally select the freshest foundation first. Nor would it be a fair test to use heavy foundation of one make against lighter foundation of another make. These conditions being equal, our experiments are highly gratifying, as we find the bees do not use the discrimination that is claimed for them. The charm that is claimed for certain foundation did not cause the bees to "take to theirs first." We shall be pleased to have others verify these results with personal experiments of their own. While we do not claim that our foundation will charm the bees, we do claim that they will recognize its high quality as quickly as they will that of any other make that is manufactured anywhere in the United States. To state that they will draw it out quicker than

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they will the same Weed Process foundation of other manufacture would not be fair to the other manufacturers of the same product, unless, of course, we should use foundation that is subject to the conditions above outlined, in which event it would not be an impartial test.

Superior Honey Co.

Ogden, Utah.

A Big Queen-Breeder's Apiaries. The apiary of J. P. Moore, the widely known queen-breeder, is situated about a mile from the little town of Morgan, Ky., and comprises some 600 nu-



A corner of Moore's apiary.

clei in addition to 285 full colonies. These 285 colonies include an out-apiary of 85

colonies. The winter loss here last season was only 18 per cent, and all colonies are wintered in two stories. The capacity of this yard is 900 queens per month. It will be noticed in the illustrations that all nuclei are raised about three feet from the ground to prevent backache incident to constant stooping. This is no small matter for consideration when the nuclei run up into the hundreds. There are four on each stand.

The honey crop was far below normal this year, probably about 12,000 pounds. As a rule, two men run this yard from May 15 to Dec. 15, and one extra man is engaged during extracting time. The main flow is from sweet clover; but considerable honey is also secured from white clover and locust. Goldenrod and asters furnish a limited fall flow.

Albin Platz.

Cincinnati, O.

That-Comb-Honey Ratio Again. Several times has Dr. Miller puzzled over

the relative amount of comb to extracted honey that could be produced by the same number of colonies, and I have never noticed any one attempting to answer the question, altho I believe it is asked sincerely, and not with a view to entrap some thoughtless "fly" mind. It appears to me the answer is one of locality, or, rather, of latitude. There might be a place, say Marengo, where the temperatures are so equable, night and day, that the ratio of comb to extracted might be as 2 to 3. Another place, with colder nights, might make



A section of J. P. Moore's apiary at Morgan, Ky., showing the manager and honey-house of the well-known queen-breeder.

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the ratio 2 to 4; but if one were to travel away to the north, where the nights are considerably cooler, the proportion would vary still more in favor of extracted.

While I have not tried to raise any comb honey for a few years, I have seen a hot summer when I did get about 50 combs from a hive. But usually it is too cool here at night (and that is what makes the good wheat that brings the world championship to Canada) to allow the bees to break into clusters small enough to produce comb honey, and, consequently, some summers we can not get a single comb except in shallow supers, while at the same time I have got 100 pounds of extracted. What, in this instance, is the ratio of comb to extracted?

W. J. Boughen.

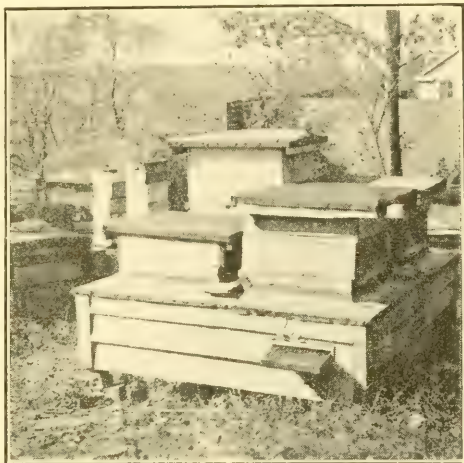
Valley River, Manitoba.

Quadruple Double Walled Hives.

The quadruple double-walled hive shown in the accompanying illustration has been used with success by

Hugh L. Lynn, Livia, Ky. There are two

entrances on the south, one on the east, and one on the west. For convenience in handling, the four hives in each group are five

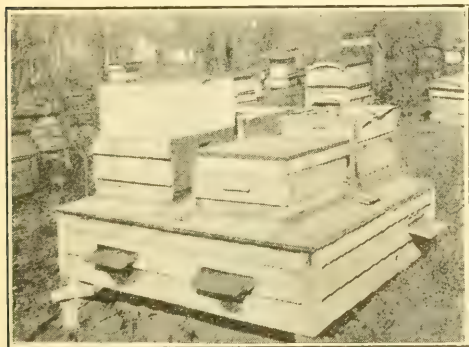


Mr. Lynn is careful to have his hives dissimilarly arranged, as A. I. Root recommended many years ago.

inches apart. This makes it possible to use summer covers and to have the four hives at different heights. The roof, or water-table, reaches to within about an inch of the top of this brood-chamber, thus leaving plenty of room for the summer cover, even when no super is being used.

It will be noticed that four of the roof boards have less slope than the lower roofing, the projecting ends serving to hold the winter case in position.

As a winter protection, above this double-walled hive are placed the winter case of leaves and the cover herewith shown. This case is made narrower at the top in order to reduce the size of the roof.



This quadrupled double-walled hive makes it possible to use summer covers and have the hives of different heights. The brood-chambers remain packed the year round.



This winter case (or cover) packed with leaves roofs the quadruple double-walled hive.

Get Your Price for Honey.

"The Price Question," by A. S. Brown, page 724, December

Gleanings, should be read over two or three times by the crazy fellows who take any old price for their honey. To endeavor to educate people to thinking they want honey, is a fine idea, and is my favorite plan of working. The other suggestion: "When wholesaling, sell at wholesale; when retailing, sell at retail," will cure a lot of your honey-selling troubles. I have kept bees for seven years and have had no trouble in cultivating a class of trade that pays 25 cents per section, in spite of the stores and some beekeepers that persist in selling at 15 cents, or two sections for 25 cents. The past two seasons stopped that nonsense. Two years ago I had 1,500 fine sections. There was no

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ready sale for me until about Nov. 15, when the hurry-up fellows had disposed of their cheap stores. After that I sold all of mine at 25 cents, and supplied my customers up to Aug. 15, 1918. Hamlin B. Miller.

Marshalltown, Ia.

Honey as a Balance Wheel.

It is not often that one can find flaws in Dr. Miller's "Straws."

So I grasp this opportunity. On page 602, October Gleanings, he says: "There is another reason, likely more important, for having a goodly store of honey in the brood-chamber thru the winter. It serves as a sort of balance wheel equalizing the heat. In ordinary weather the honey is warmed up to something like the temperature of the brood-nest. Then, when the thermometer takes a sudden plunge away below zero, the bees with a big lot of honey do not get the full effect of it because the heat that has been stored up in the honey is slowly given out, and it seems that such a colony should stand the shock better than the one with the empty combs."

This reminds me of the lady that had a newly arrived Swedish girl for a servant. The girl complained of cold feet at night and the lady told her to take a flatiron to bed with her, and in the morning asked her

how she got along. The girl replied: "All right—after I got the flatiron warm, but I nearly froze to death while trying to get it warm."

Why not use a flatiron or bricks instead of honey? It would be cheaper.

The doctor's theory might work all right if he warmed the honey every night, but how about it when the honey gets cold and the bees have not only to warm themselves up (say five pounds of bees), but must also warm up 10 or 20 extra pounds of honey?

Then, too, I don't see how in ordinary (winter) weather the honey can be warmed up to something like the temperature of the brood-nest unless the honey is in the cluster, which would apply to only a small part of the honey in the hive. I think his theory would sound better in mild weather, before a cluster is formed, for then the bees and honey would both be in the same atmosphere, so to speak. If, according, to Phillips, the inside of the hive outside the cluster is of the same temperature as outdoors, the bees would get but little heat (if any) from honey outside the cluster—certainly not as much heat as the honey would get from the bees.

I am not saying anything against lots of honey in the hive for the bees to eat.

Hammonton, N. J.

C. E. Fowler.



THE BACKLOT BUZZER.

Ma says she isn't given to bragging, but she will say this, that she notices that some beekeepers spend more time these days clipping coupons off their liberty bonds than fringe off their shirt cuffs.

IN discussing large hives the editor of the American Bee Journal, December, rather questions the assertions of some beekeepers that claim to have

had queens fill 16 frames with brood. In his opinion part of those frames were rather plentifully supplied with honey. He states his belief that 12 frames, Langstroth size, will provide sufficient room for the best queens. He also says that the younger generation of Dadants are positive that an active beekeeper, with these large hives and a Ford, can properly care for a thousand colonies in different apiaries.

* * *

"REMINISCENCES OF CANADIAN BEEKEEPING."

The December American Bee Journal contains the following interesting statements by J. R. Black:

"When I left the University in 1875, I had a nervous breakdown, which disturbed me chiefly in the prevention of sleep. When the medicine man had diagnosed my case, he said, to my surprise: 'Keep bees.' I asked him, 'Why?' He answered, 'Keeping bees will take you out of your study, away from your books, and give you a sun bath.'—In a few days the doctor came with a colony from his own apiary, and I made a beginning in beekeeping." * * *

"Forty years ago the late D. A. Jones was easily the most prominent apiarist in Canada." His big undertaking was a visit to the East, for the purpose of securing for Canada new races of bees superior to the native ones. These he believed he found in Palestine and the Island of Cyprus, and he accordingly returned with a number of colonies. These strains were somewhat popular for a few years, but when put in competition with the Italians failed to make good. The Cyprians were too irritable and the Palestinians not prolific nor good honey-gatherers. * * *

"While the claim that a purely mated Italian queen will cure any colony infected with European foul brood, may be more than is warranted in the actual issue, it is certain that once such a stock appears in a clean colony its immunity in future is one of the things to be confidently expected."

[We have known of exceptions however. —I. F.] * * *

"No change in Canadian beekeeping of the past half-century is more marked than the Government's relation to it."

* * *

IMPORTATION OF THE ITALIAN BEE.

The history of the importation of the Italian bee is given by C. P. Dadant in the American Bee Journal. The first attempt at exporting them was made in 1843 by Capt. Balenstein of Switzerland, when he employed two men to carry a colony of Italians across the Alps. His inability to keep the

THE BEST FROM OTHERS

Iona Fowls

race pure attracted the attention of Dzierzon, who in 1853 also imported one from Italy and from this one colony succeeded in rearing 30 pure

queens. Owing to natural barriers it has been possible for the Italians to remain so long pure. The bees of Nice are black, and the change from blacks to Italians is gradual from Ospedletti to Genoa. North of these mountains the bees are pure Italians as they are in the entire peninsula. After breeding from this strain for four years, Dzierzon wrote: "This race of bees is still industrious, as beautiful and as docile, as it was the first season. Nay, in several of my colonies, as the result of careful breeding, it is even handsomer,—as I invariably use the brood of the handsomest and most fertile queens for multiplying."

Mr. Dadant states that the first Italian bees successfully imported came from Dzierzon's apiary and were purchased by Samuel Wagner and Richard Calvin, in 1859. The first man to import largely from Italy or Italian Switzerland was Adam Grimm. In 1867 he brought over 100 Italian queens.

Five years later, Chas. Dadant made a special trip to Italy, but failed in bringing more than 20 to America alive. It was not till 1874 that queens were imported in any great numbers. The early failures, however, taught many essentials of transportation for long distances. Dark honey as food in transit almost always caused diarrhea, and all honeys proved less healthful than sugar syrup or candy. Active field bees stand the trip better than young ones, but there should be some young ones with the older ones. The bees are apt to chill and die if the temperature falls below 60 degrees F. When imported they should be kept supplied with plenty of air in special repositories as live animals. Unless there is brood or the food is too dry, water is entirely unnecessary, and pollen is very injurious, especially if in the honey consumed during transit.

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ANOTHER PLAN OF SWARM CONTROL.

"Variation of the Demaree Plan for Swarm Control," by W. J. Sheppard, is an article appearing in the December American Bee Journal. The heading is very unfortunate, as is also the attempted comparison, since the plan given has no relation to the Demaree plan, there being an entirely different principle involved. It is possible that the plan has merit, but as to calling it "Demaree," there are features so radically different that if the plan proves of value, we propose calling it the "Sheppard Plan."

The last of May when the brood-chamber is full of bees, Mr. Sheppard places the queen with two or three frames of unsealed brood in the center of a second story over a

queen-excluder, filling the remainder of the first and the second story with frames of comb or full sheets of foundation. Eight or nine days later all but one of the queen-cells that may be built below the excluder should be destroyed.

As soon as the young queen below is mated and laying, the old queen can be removed. If desired, she may be given two or three frames of brood and a good nucleus started, or she may be left until the combs below are partly filled with brood. Eight or nine days after her removal from the second story, any queen-cells started above are destroyed. It would seem to us that as the colony became more powerful, there would be a chance of a swarm issuing; but, with the old queen above the excluder and a young one below, Mr. Sheppard says there is little danger. Nor is there any likelihood of the colony swarming, during the rest of the season, since colonies headed by such young queens seldom swarm.

He further states that he has found that when the new wire queen-excluder was used the bees, as a rule, would build queen-cells (evidently he intended saying "would **not** build queen-cells") except when a shallow super was put above the first story and a second wire excluder over that, leaving the queen and brood in the third story. If an ordinary zinc queen-excluder was used instead of a wire one, there was no trouble in getting the bees to start queen-cells.

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"Weak Spots in Inspection," an article in the Western Honey Bee, says Prof. Frank Pellett admits four defects in inspection work: (1) lack of funds; (2) payment of inspectors upon a per diem basis; (3) mistakes and bad judgment of new men; (4) unreasonable and ignorant beekeepers who defy inspectors. To us 1 and 3 seem most serious. If sufficient funds were available perhaps poor inspectors would never be sent out, and yet lack of funds is no valid excuse for their employment. The ignorance of such inspectors has completely queered all inspection work in many localities.

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Wild buckwheat or rabbit brush (botanically, *Eriogonum nudum* or leafless buckwheat) yielded 100 pounds per colony this year in Albert Lane's apiary in Los Angeles County, according to the November Western Honey Bee. This plant usually does not yield enough for surplus, but when conditions are just right a fine white honey of excellent flavor is produced.

* * *

A case of selling diseased bees came to the attention of the South Staffs and District Beekeepers' Association, who decided to make a test case and, if possible, put an end to such a practice, as stated in the October British Bee Journal. The defendant was convicted and fined £3 5s. and costs. This precedent will doubtless be of help to other beekeepers' associations.

In speaking of the "rake off" which the middlemen get on honey deals, the November Western Honey Bee claims "statistics show that the beekeeper is getting but 35 cents out of each dollar paid by the consumer for his honey." According to this, when honey is retailing at 45 cents, the producer is getting less than 16 cents, and when retailing at 30 cents, the producer gets 10½ cents.

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"To make success, buy your bees and supplies right, cut cost of production by less fussy methods, winter in the cellar where successful, and sell as much of your crop to retailers and consumers as you possibly can. Save even fifty cents per colony on wintering and get fifty cents per colony's product above jobbers' prices and you will have success if your location is at all good."—F. W. Lesser, in November Horticulturist and Beekeeper.

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"The great Miller & Lux landed interests in Central California have at last opened their lands to the advent of beekeepers, which they have always refused to do heretofore. It is said that a certain beekeeper has a contract to place 4,000 colonies on these properties the coming year."—November Western Honey Bee.

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"Beekeeping, insofar as the forage is concerned, is practically unlimited in the valley regions between the San Geronio Pass and the Colorado River," says Charles W. Mixer in the November Western Honey Bee. "Mesquite, the chief forage for bees in that section, is more plentiful than it was ten years ago."

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The MacDonald Aluminum Honeycomb Company will soon pass into the hands of a large corporation, it is stated in the November Western Honey Bee. In speaking of the aluminum combs, the editor holds they are still in the experimental stage but considers the invention very valuable.

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"I have found that it has cost me about five cents per pound to produce ripe extracted honey. This is an average for 13 years with an average production of 15 to 20 tons a year."—F. W. Lesser, in November Canadian Horticulturist and Beekeeper.

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"Relaxation in the sugar restrictions may have some effect on the demand for honey, but hardly enough to affect the demand for honey of this year's crop."—M. G. Dadant in December American Bee Journal.

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"Langstroth needs no monument to his memory, except the fact that he gave freely and willingly to his brethren of what he discovered and knew."—John Moore in The Canadian Horticulturist.

THE dates of some of the beekeepers' conventions soon to be held are as follows: Kansas State Beekeepers' Association, Jan. 7 and 8, at the Chamber of Commerce, Topeka; Pennsylvania State Beekeepers' Association at Harrisburg, Jan. 22 and 23; Michigan State Beekeepers' Association at Lansing, Jan. 21 to 23; Illinois State Beekeepers' Association, at Leland Hotel, Springfield, Dec. 17 and 18; Minnesota Beekeepers' Association, Jan. 2 and 3, at Room 4, Plant Pathology building, University Farm, St. Paul; New Jersey Beekeepers' Association at Trenton, Jan. 16 and 17; Western New York Honey Producers' Association at the Genesee Hotel, Buffalo, Jan. 10 and 11; Ohio Beekeepers' Association, Jan. 28 and 29, at Botany and Zoology building, Ohio State University, Columbus; National Beekeepers' Association at Hotel LaSalle, Chicago, Feb. 18 to 20. It will interest many of the possible attendants of the National meeting to know that Dr. C. C. Miller expects to attend one day.

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The A. I. Root Company of California has recently been incorporated under the laws of California with a capitalization of \$200,000. The officers of the new company are: J. T. Calvert, president; Miss Hazel A. Doyle, vice-president and manager; Ernest Andrew, secretary-treasurer; H. A. Sweet, general superintendent. These officers, with C. F. Stone, are directors of the company. The office and factory are located at 1824 East 15th St., near Alameda St., Los Angeles. All kinds of bee supplies and foundation are now manufactured at the new plant, and the company has been formed for the special purpose of taking care of the Pacific Coast trade and the Pacific export trade. Stock is being sold so far as possible to California beekeepers. It is hoped to make the new company very largely a California institution. J. T. Calvert, treasurer of the A. I. Root Co., who went to Los Angeles early in October to supervise the affairs of the company in its early stages, met with a serious automobile accident Nov. 4, in which he had the misfortune to have his thigh broken, a result of which is that he is still confined to a bed in the Clara Barton Hospital at Los Angeles. His full and early recovery is confidently expected.

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The U. S. Department of Agriculture, in its honey-crop report for 1918, states that the total crop of the past season was about equal to that of the previous year and only a few per cent below the average of the last five years. It is stated that the crop was unusually good in the East and South as well as in the Rocky Mountain region (ex-



JUST NEWS

Editors

cepting Arizona) but poor in the Mississippi Valley region. There was a marked increase in the production of extracted honey and corresponding decreases in comb and chunk-honey production. The increase of colonies since spring is reported as 16 per cent, this being about three per cent less than the losses last winter. The States which suffered the severest winter losses last year were those east of the Mississippi from Virginia and Kentucky northward and in the Western States from Colorado and Utah northward. At the date of the report, Nov. 21, the condition of strength and healthiness of colonies is 94 per cent of normal, being average for that date. A 100 per cent condition is reported from Oregon, Utah, Colorado, Alabama, and New Jersey, and all New England is close to that figure.

* * *

The annual meeting of the New York State Association of Beekeepers' Societies, held at Buffalo on Dec. 3 and 4, was fairly well attended, and the program brought out much of interest and profit. O. L. Hershisser of Kenmore was elected president, and J. H. Cunningham of Syracuse was elected secretary-treasurer.

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Dr. C. C. Miller is the subject of an exceedingly interesting sketch in the American Magazine for December. Most beekeepers know as much about the Doctor as this article tells, but it will prove exceedingly interesting to a great body of American citizens who are not beekeepers.

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Apiculture in Quebec is going ahead fast. The American Consul there reports that the yield of extracted and comb honey for 1916 was 3,041,930 pounds, while five years before the total annual production was only 1,393,460 pounds.

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The convention of the Wisconsin State Beekeepers' Association, held at Madison, Dec. 5 and 6, was not largely attended because of the influenza epidemic, but its meeting proved exceptionally interesting and profitable. Gus Dittmer was elected president to succeed N. E. France, and Edward Hassinger, Jr., was re-elected secretary.

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At the first annual meeting of the beekeepers of Chenango County, N. Y., Dec. 14, I. W. Bedell of Earlville was elected president, and T. R. Gordon of Norwich was made secretary-treasurer. It proved an excellent meeting of enthusiastic beekeepers.

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The annual meeting of the Nebraska Honey Producers' Association, on account of the influenza epidemic, has been postponed to a future date not yet announced.

QUESTION.—Every morning on getting up and examining one of my hives, I find a few dead brood at the entrance. The brood is white and very rarely cut in pieces. There are no symptoms of European or American foul brood, and no cases in the vicinity. You might say that it is chilled or starved brood; but this has occurred in the hot summer, and the colony has always had sufficient stores. Neither is it drone brood. This is the only colony affected.

L. Longtin.
New Orleans, La.

Answer.—The brood has evidently been overheated. Sometimes in a hot climate, if the sun shines directly on the side of a hive, the brood next that side will be killed and drawn out at the entrance. In a large apiary there may not be found more than one or two in that condition, all depending on the exposure to the sun, amount of ventilation, and size of colony.

Question.—In books and in Gleanings various instructions are given about making increase from strong colonies. Now, can you tell us beginners what constitutes a strong, a medium, and a weak colony, in terms of comb-surface area and the density of the bees covering it.

Santpoort, Holland.

W. B. Wallace.

Answer.—When speaking of colonies of bees the terms "strong," "medium," and "weak" are used very loosely. Much depends upon the size of the hive one is using, and upon the time of the season. Since you speak of making increase you are doubtless thinking of warm weather, when the same number of bees would be scattered over a much larger space than they would occupy on a cold day in the fall. In fact, a colony that on a warm day would appear to fill a hive completely, might during cold weather cover no more than five or six frames. During the summer when the hive cover is first lifted, and before the bees have had time to rearrange themselves after their disturbance, if it is found that the bees cover all of the frames clear to the outside, it would be pretty safe to consider them a strong colony even before removing any frames from the hive. On removing them, however, one would find the bees covering practically all of the combs present in an ordinary ten-frame standard hive. If, on this first glance, it is found that the bees cover no more than seven or eight frames, we would call that colony medium; if less than this, weak. As previously stated, it is very difficult to give definite figures for a question of this sort, some beekeepers having colonies much larger than those we have indicated.

Questions.—Might I request your indulgence to answer me a few questions concerning the article, "Swarm Control," which appeared in June number of Gleanings? (1) After removing original colony from the top of the hive at the end of eight days, will it require any further precautions for swarming other than breaking down cells when the same

GLEANED BY ASKING

Iona Fowls

are found? (2) This colony produces the crop; will as large a crop be produced per colony as if the plan had not been followed? (3) May this plan be followed more than once in the same season (I realize that if so, there would naturally be a great diminution of the crop.) (4) If your plan is strictly followed, as set out in this article, will the swarming impulse be always satisfied and swarming be completely eliminated? (5) If the plan be practiced with a given number of colonies, can the number be doubled and a normal crop expected the same season?

S. J. Manchester.

Toronto, Can.

Answers.—(1) Since only capped cells were removed at the first manipulation, one should expect to find more queen-cells in the top story at the end of eight days. All of these may be removed but one. In the lower hive it is very rare that further cells will be found. (If cells are found in the lower hive, it is usually on account of a failing queen or because young bees were left below at the time the brood was raised. For best results only field bees should be left below.) (2) Larger, for no time has been lost by loafing, that generally accompanies swarming. Also, the colony is larger than would be the case, had they swarmed naturally. (3) It should be noted that this plan as described is employed only after queen-cells have been started and usually not until after they are capped; therefore, since the colony seldom starts other cells, after these manipulations, there would be small chance of repeating the operation with the same colony. It is possible, however, that one might vary the method by applying before queen-cells are started and thus make repeated increase, tho we believe there are much better ways of making rapid increase. The main idea of this plan has been to prevent or keep down natural increase, not to make more. (4) No, there will be a few rare exceptions. (5) We believe any colony will produce more honey, if kept contented and no increase made; still we know of no plan that will result in as large a crop, and at the same time allow increase if desired.

Question.—In Gleanings, page 682, a beekeeper of 50 years' experience claims the bees carry out honey in the spring to make room for new honey. Miss Fowls says they do not. What, then, I ask, are the little white grains, that so closely resemble granulated sugar, that they do carry out in the spring? If the frames are examined at this time, some will be found quite dry, but containing many of these little grains. Is not this granulated honey?

Cincinnati, O.

J. E. Roebeling.

Answer.—At any time of the year, regardless of the moon, when bees are working on a coarse-grained candy or granulated honey, more or less of it falls to the hive floor; and whenever the weather is warm enough these particles are hauled out of

the entrance. This, in our opinion, is removed simply because, unless sufficiently moistened, it is not in suitable condition for the bees' use, and not because there is nectar in the fields. In fact, bees often store new honey right in the same cells on top of the candied honey. If combs of candied honey are removed from the hive, uncapped, dipped in hot water, and returned to the hives wet, much of this honey will be saved that would otherwise be wasted.

Question.—Why are drones tolerated in colonies as late as December 6th? Claude Barker.
Avilla, Mo.

Answer.—Drones may be found late in the fall, if there is a late fall flow or if the bees are fed regularly. Otherwise, their presence would indicate the absence of a good queen, and the colony would be found to be queenless or possessed of a failing queen, drone-layer, or laying-workers.

Question.—Three of my colonies have foul brood. Do you think that by wintering them with healthy ones in the same room of the cellar, I endanger the healthy colonies? J. B. Bowman.
Bridger, Mont.

Answer.—If right conditions could be maintained so that the bees would remain contented in their hives, there would probably be no spread of the disease. Still, we would not care to take chances on such a proposition.

Question.—At Grand Rapids I became acquainted with a beekeeper that advocates the attic way of keeping bees with no swarming, but I would like to look up the matter some before deciding on *no-swarm hives*. Will you kindly give me your opinion? Wm. J. Runyan.
Coopersville, Mich.

Answer.—Bees may be kept in the attic; but this in no way prevents swarming nor has there yet been invented a practical non-swarming hive. From your allusion to Grand Rapids we rather suspect you have in mind the Pearce new method of beekeeping. If so, we suggest that you would doubtless be interested to read a book review as given on page 633 of the October number of *Gleanings*.

Questions.—(1) Would you expect an untested queen from the mails, introduced late in the fall after all brood-rearing had stopped, to do as good work the next year as one that had been introduced earlier and had layed a few weeks? (2) I noticed at different times, during the honey flow in some colonies, the bees working under the canvas quilts made a sound not unlike rain falling on a newspaper. I thought they were propolizing; but now in fall feeding, with quilts off and clean feeder-boards on, I notice the same sound. The bees are not flying, so could gather no propolis. Could you tell me what they are doing when making that sound? E. C. Hardie.
Burford, Ont.

Answers.—(1) When untested queens are introduced as late in the fall, it sometimes happens that they do not lay at all until the following spring. However, if fed for a time, they may sometimes be induced to lay even, tho it is late. Whether or not they lay in the fall, we believe that there will be no difference in their work the following spring. (2) This sound may result from

the bees performing the washboard movement, the cause of which has never been definitely proved, yet we do not know. To our knowledge they make no strange sound when propolizing, for the propolis when gathered is soft.

Question.—Please let me know whether it is injurious to people to eat honey that has been thru a solar wax-extractor. Margaret Ullman.
Illinois.

Answer.—Not in the slightest. The honey will be very thick and have a waxy flavor that is rather pleasant to many, some even preferring it to a honey of more delicate flavor.

ANSWERED BY DR. C. C. MILLER.

Questions.—(1) Would you please tell me how to rear queens for use in my own apiary next year, as some of my queens are getting to be quite old? (2) How old should a queen be before she is replaced by a young one? (3) How may I work from hybrid bees to Italian? Can I put tested Italian queens in the hive in place of the hybrid queen, or will the hybrid bees all have to be killed off first? (4) Which is the best way to buy bees—in pound packages or in nuclei? G. T. Pettys.
New York.

Answers.—(1) In the limited space allowed here it would be impossible to tell very much about rearing queens, as it would take a whole book to go into the subject fully. Indeed two very good books have been published on queen-rearing, the first by G. M. Doolittle and the other by Frank C. Pellet, and you can get either from the office of *Gleanings*. I might say briefly that one way for you to do is as follows: see that the colony containing your best queen is built up very strong, giving it sealed brood from other colonies if necessary. When the honey flow begins, take out two frames with adhering bees, the queen on one of them, and put them in an empty hive on a new stand. Shake into this nucleus the bees from one or two additional frames for good measure. Ten or eleven days later return the old queen to the old stand, taking away the hive containing the brood and queen-cells, and divide this latter into as many nuclei as you can, each nucleus having two or more frames of brood, and see that each nucleus has a queen-cell centrally located where there is no danger of its being chilled. In about three weeks from the time you began operations you should have a laying queen in each nucleus. (2) Opinions differ, and localities differ. In some localities it may be better to requeen annually; in others better not. In my own locality, which is probably much like yours, I never requeen at all, unless there is some fault to find with the queen besides old age, leaving the bees to requeen when they like. (3) If you introduce an Italian queen into a hybrid colony, you need pay no attention to the worker bees. In a month or two the bees of the old queen will be gone, and all the workers will be daughters of the new queen. (4) If you get them near by, the nucleus may be better, and 2- or 3-pound packages if you send a longer distance.

"IT is Dec. 12, and we have had six inches of rain and spring is here. Outdoors is a carpet of green and bees are working on blue gum (eucalyptus) and some other plants."—J. G. Harman, San Diego County, Calif.

BEES, MEN AND THINGS

(You may find it here)

"How is this for a story! My next-door neighbor, a man of veracity and keen discernment, informed me that his great Rhode Island Red rooster, a proud handsome bird of two summers, had swallowed one of my honeybees and had gone crazy. For three long days my neighbor could distinctly hear the bee buzzing in the crop of the noble bird. At last he could stand it no longer; so, on a Sunday morning when the family was away at church, this good neighbor decided to end the misery of the rooster and also to liberate the unfortunate prisoner. First, this gallant but now crazy bird was made unconscious by decapitation; then his crop was cut open, but before the operator had time to decide what should be done to the inmate, the honeybee, overjoyed by its freedom, made a bee line for the hive. This is surely a new, tough specimen of a honeybee. Think of it! Three days in the crop of a rooster without losing consciousness, and when liberated returning at once to its old job of making the world a little sweeter! If this stunt is repeated I shall call this strain my Jonah bees."—H. W. Watjen, Bristol County, R. I. (Watjen is a preacher, too.—Mng. Editor.)

"Last year we sold honey to grocers in pint Mason jars. This year on account of the increase in the cost of jars and higher price of honey we desired a container holding less than one and one-half pounds and cheaper than the glass jars. In the waterproof fiber cartons we found a container that has proved perfectly satisfactory. At first, the grocers did not know whether the honey would sell as readily as in glass jars and ordered only a small quantity. Filled with white-clover honey the demand has been very good, and not one complaint has been made. The grocers like these, for they do not leak and will not break. They do not have to be washed before filling and so require less work than the glass jars. * * * Forty-three of my hives were packed for wintering and fence posts, with wire stretched, set on all four sides and fodder leaned against the wire to make a wind-break."—D. F. Rankin, Jackson County, Ind.

"I started in winter quarters last season with 40 ten-frame hives, and lost only one. The temperature was below zero for weeks at a time. I used no packing whatever. I think my success was due largely to leaving the bottom-boards with the large entrance open the full width of the hive so that mois-

ture could escape. I had boards 10 inches wide and a little longer than the width of hive laid against the hive over the entrance so that no wind could

blow in. I have some hives with metal covers and some with exselsior covers and did not use any supers above filled with leaves. I think if the entrance is reduced the supers filled with some absorbent above are necessary to take care of the moisture. Why should I change when I am very successful in wintering as above described?"—Earl B. Waggoner, Madison County, Ills.

"The Chinese consider 6 to 10 pounds of surplus honey a good catch. They are very careless about their bees and let them come and go according to the 'good luck' of the family. You find them in dirty old tubs, under the eaves of the houses, hanging over a pigsty, in a hole in the mud wall—here, there, and everywhere. The last colony I purchased cost me 30 cents in gold. I took it out of the kitchen cupboard; bees on one side of the shelf and the basins, etc., on the other side. Next day I was taken to see another colony. I found it in an old box under the bed, but the people were unwilling to sell thinking that to disturb the bees would interfere with the 'luck' of the place. The bees had been under the family bed for seven years, and the neighbors came round to protest when I thought of removing them. It is not at all unusual to find two queens in one tub. They seem to work on merrily together. Chinese bees are usually quiet and easily managed. I lift them about in handfuls and rarely need to use smoke."—Edward J. Blandford, North-West Kiangsi Mission, Wucheng Ki, China.

"On the evening of Nov. 19 I put my 22 stands of bees in the cellar, very heavy with stores of about 100 pounds each. The unusual weight unfortunately toppled over their base and all fell forward on their fronts with tops and bottoms off, and the cellar was so full of bees that the electric light and kerosene lamp could hardly be distinguished. With the help of a neighbor I had them all back by 1 o'clock in the morning. We walked in bees and mashed them, putting back the covers and bottom-boards, and I swept up about two quarts of dead bees. How they ever got back and were satisfied I am unable to tell, but two days later the cellar was as quiet as tho nothing had happened; and hardly a hum is now perceptible in the cellar, with the temperature ranging from 47 to 53 degrees."—Hamlin B. Miller, Marshall County, Iowa.

"My rather carefully kept record shows this to have been the poorest year for bees since 1884—82 per cent winter loss—actual, not estimated. With 20 scattered apiaries

under my care I could come pretty close to a census. * * * Foul brood is also firmly established here. In treating it the queen seems to be the point to start from in our research, and the flow of nectar certainly has a lot to do with both the control and the incidence of European foul brood. I noted with much interest that after the cold winter young and high-grade queens became drone-layers. There was a very great mortality of queens as brood-rearing started, and laying-workers would appear in 48 hours after the death of the queen."George W. Adams, Essex County, Mass.

"I believe, if we could persuade hive-makers to make up hives full one and one-fourth inches thick, the winter-case problem in our latitude (39) would be practically solved. You ask why? I had occasion to notice many hives in Wirt and Ritchie Counties, W. Va., and invariably the old home-made hives, made from thick lumber, 1¼ to 1½ inches thick, and protected from windsweep, were the ones that had lively bees in them after the hardest winter ever known here."—E. R. Ferree, Wirt County, W. Va.

"We have three pests to contend with here, namely: foul brood; the wasp, for which we bait a wire flytrap with a small piece of salmon; and a very small ant. * * * Winter packing is hardly necessary for this latitude, as I have a number of stands that have wintered well under a low shed closed on three sides but entirely open to the east, this being the direction from which we seldom have any wind. Bees remain in this shed the year around."—J. W. Beckley, Marion County, Ore.

"In the field around me sweet clover grows eight and nine feet high, and last year I cut and measured one stalk nine feet, ten inches. Along the roadside, it grows to that height. * * * Before tacking the metal on my covers I place several thicknesses of newspaper between the wood and the metal. I thought this would act as extra insulation. As this cost nothing, I thought I would hand the idea along."—Maurice Grinby, Toronto, Ont.

"The season just past has been one of the most peculiar for several years. The most peculiar feature was that from Apr. 2 to Aug. 25 there was not a day but that the bees had plenty of honey to gather, something I never knew before. However, the honey crop fell short of the average. The spring was exceptionally favorable, but the summer very unfavorable because of cold and wet."—M. E. Ballard, Delaware County, N. Y.

"I believe the fact that we are called 'beekeepers' even by ourselves has belittled the honey-producing industry. In using the term 'beekeepers' and 'beekeepers' associations' the public is not brought face to face with the product of our business. We

are 'honey-producers,' and should call ourselves and our associations such."—Ivan Whiting, Sheboygan County, Wis.

"We have this year produced 102,616 pounds of honey from about 868 colonies spring count, and finished the season with 1065 colonies that have the largest winter stores ever left, nearly five combs to each colony, besides all they have in the brood-nests, so as not to draw on the sugar supply. I have bought out my father's interest in the business."—E. F. Atwater, Ada County, Ida.

"This winter is starting in much the same as last winter did, with snow from Dec. 1 on. If the snow stays it will be much better than without it. I had to double up half of my colonies for stores. Applied for sugar cards in September and received them in late November."—Robt. Elwell, Providence County, R. I.

"Here in eastern Pennsylvania the bees that survived last winter's severe losses have done well. Many lost all the bees they had. But I recall one beekeeper who had extra-good wind-breaks and his colonies came thru in excellent condition."—Elwood Bond, Monroe County, Pa.

"All the honey has been sold at a good price. At a sale here bees in old boxes sold for \$9.00 per hive. A few years ago I bought a hive for \$1.00. So you see the bee business is looking fine here."—S. T. Bowman, Morris County, Kans.

"The beekeepers around here had a very successful season, generally speaking. My own averaged more than 100 pounds started on foundation. These were packages from the South."—C. C. Crosskill, Clarksburg, Ont.

"This has been an extra-good year for honey with us. All sold at from 25 to 28 cents for clover and basswood, and 21 cents for buckwheat."—J. I. Gillman, Locust Hill, Ontario, Can.

"The value of clover alone in adding nitrogen to the soil would justify its use in the crop rotation, as proved by tests here." Bulletin of the Ohio Experiment Station.

"The real beemen are nice fellows. A nervous and irritable man does not stay with the bee work long, as the bees move him on."—E. E. Mott, Cass County, Mich.

"My 20 colonies made me a net profit of \$319.55 this year. I have the only bees in this country."—C. S. Hall, Ball's Bluff, Ky.

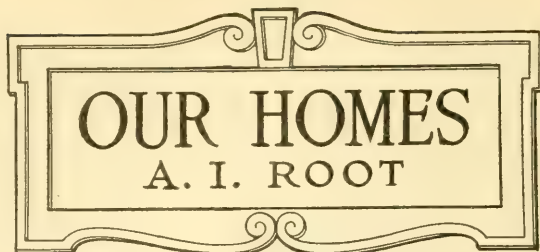
"We are having good rains here and look for a bumper crop."—W. E. Tuttle, Monterey County, Cal., Nov. 28.

"This is the first time in 30 years I have fed bees for winter."—Gene Rogers, Sebastian County, Ark.

IN the month of October, 1878 (just 40 years ago as I write), when we were putting up the first brick building just opposite our railroad depot, I had the mason put in the middle of the east front of the building, clear up to the top, a block of sandstone with an old-fashioned straw hive carved on it and right above it were the words in large letters, "*In God we Trust.*" This inscription is, of course, still there. It is so close to the Baltimore & Ohio Railroad that the passengers who go by daily are sure to see it as they take note of the building that is now simply a part of the other buildings of the A. I. Root Co. During the years that have passed there have been many comments in regard to this inscription that has appeared for so many years on the face of our coins. Years ago they used to laugh about it; but as time passed and the business grew, and its reputation spread further and further, I do not know but the great busy world began to think it was not only a good thing to have "*In God we Trust*" stamped on our coins, but that it would also be a fine thing if *more business houses* had it over their doors, and better still, inscribed on the hearts of the proprietors.

I recently saw in the *Sunday School Times* a statement to the effect that the *Times* people had published a little book giving the names of the various business firms who had prospered and flourished for a long period of years; and they paid strong emphasis on the fact that these old business houses that *continue* to grow and prosper were, almost without exception, under the management of a Christian man, and, with few exceptions, a man or company of men who are regular attendants at church and Sunday-school, and many of them prominent workers in Sunday-school. Heinze, the pickle man ("57 different kinds of pickles"), is even yet, in his old age, a great Sunday-school man; and just recently he gave a splendid address to a great convention of Sunday-school workers in some eastern city.

Some years ago the skeptics used to be fond of saying that there was more crookedness among church members than



We trust in God.—I. TIMOTHY 4:10.
I have seen the wicked in great power, and spreading himself like a green bay tree. Yet he passed away, and, lo, he was not.—PSALM 37:35.

among any other class of people in the world. I have not heard this lately, but occasionally we hear something of the sort. The whole wide world has begun to realize that not only peace of mind and tranquillity

of soul come from trusting in God, but also financial prosperity—a prosperity that stands the assault of years.

Well, what brought this whole matter to mind was that at one of our stockholders' annual meetings one of the speakers, in commenting on the legend cut in stone over our first building, said that some years ago there was much talk about adulterated liquid honey and honey in the comb manufactured from paraffin and glucose without the bees ever having had anything to do with it. Some of our older beekeepers will remember about our offering \$1,000 for a single pound of manufactured comb honey, and afterward \$10,000. Of course, not even one pound of bogus honey was ever gotten hold of. Well, this talk recalled the fact that once A. I. Root was accused of making honey mostly or entirely of glucose, etc. Yes, it got into the papers also; and one editor came down to our place and charged me with it. I told him he was welcome to visit the premises and go everywhere and look everywhere. When he asked me if I had any glucose on the place I showed him a little bottleful—perhaps half a pound. On another occasion somebody on the street declared that A. I. Root's honey was bogus and all of it manufactured. A lady who had a daughter for many years in my employ called him to order right there on the street. She said in substance:

"My good sir, my daughter is in the employ of A. I. Root, and has been almost ever since he commenced business. If he were doing anything of that sort, do you think I would consent to let her work for him, or that she herself would consent to continue in the employ of such a man, especially when right over the front of the building, cut in sandstone, is the motto, "*In God we Trust?*"

Now, friends, I suppose you have the matter clearly before you. Would it not take considerable "cheek" for any man

in any business to put up a motto like that and then proceed to defraud and cheat his fellow-men, especially if his business continued to grow and prosper year after year? Falsehood, "camouflage," and some others of these new things just started with the war, deceive a good many and succeed for a time, in the business of cheating and swindling; but all such enterprises soon get to the end of their string.

As I write on this 2nd day of October, Germany is fast approaching the end of the string I have been speaking of. She has managed to get along in her iniquitous ways for an unusual number of years; but her doom is now coming; and, as I write, it seems to be coming swifter and faster every day. Dear reader, no matter whether you are old or young, man or woman, boy or girl, will it not pay you to remember the legend on the coins in your pocket—"In God we Trust?" and may this not only be written and stamped indelibly in the innermost recesses of your heart, but may it be your constant effort both day and night to live up to the little precept and to make the great God, who rules in heaven as well as here on earth, your daily confidant, counselor, and friend.

THE SUNFLOWER: NOT ONLY MILK AND HONEY, BUT PERHAPS BUTTER ALSO FROM THE SAME PLANT.

The article in our issue for October in regard to sunflower for silage has brought forth quite a little correspondence. About the first of September I planted some seeds of the Mammoth Russian sunflower to see what it would do so late in the season. Today, Nov. 8, some of the plants are nearly two feet high; and one of our cows eats them with avidity. I first gave her some sunflower heads that I found in a neighbor's garden. These she devoured eagerly, and afterward chewed up the stalks that bore immature heads. After having got this taste, she eats my young plants eagerly, and "calls for more." The other cow (we have only two) does not seem to "catch on," and the same is true of the horses, from which I am led to think it is somewhat of an acquired appetite like sweet clover.

A Government bulletin, No. 687, records some experiments in regard to using oil from sunflower seeds for human food. This oil compares favorably with any other food oil known; and if it can be produced cheaply enough, it would be very likely to take the place of butter. Since butter is so high just now (60 to 70 cents) it seems quite likely the oil from sunflower seeds

might be eatable. I found the clipping below in the *Plain Dealer*:

"We passed thru an immense field of sunflowers. I looked inquiringly at Richter. 'We extract oil from them,' he explained. 'You will see thousands of fields just like this one all over Germany.'"

I have read somewhere that in Russia sunflower seed is a great staple, the people using the meats in place of animal food, and also using oil. We have some reports in regard to 100 bushels of seed to the acre. From what I can gather, my impression is that it is only occasionally that sunflowers yield honey in any considerable amount. I shall be very glad to get additional information.

The Government bulletin, dated May 25, reads as follows:

"The crop was harvested for silage on September 22, at which time on about 50 per cent of the plants the seeds were well formed and in the 'dough' stage, while the remainder were not so nearly matured. The yield from the plot in which the plants were thinned to 15 inches was at the rate of 16.91 tons per acre, and from the plot thinned to 6 inches the yield was at the rate of 19.42 tons per acre."

My little planting has demonstrated what has already been said, that the sunflower stands frost much better than corn. At this date, Nov. 9, we have had no severe frosts here in our locality; and light frosts that cut down the late corn seem to have had little or no effect on the sunflowers.

THE ELECTRIC WINDMILL; FLORIDA GARDEN.

Day after tomorrow is Thanksgiving day; and it *should* be, and God grant that it *may* be, the greatest world-wide Thanksgiving the whole wide world has ever known—a thanksgiving with less "booze" than the world has ever known in proportion to the population. Now to come away down to *my* little world, in my modest Florida home you may care to know what makes me more than ordinarily happy. I found my good friend Kaiser had the electric auto in fine trim, with the batteries well stored and the windmill rejoicing (?) in a new rubber *endless* belt. The common belt wore out during the summer, and the Goodyear Rubber Co. of Akron, O., made us a rubber belt which they think will stand Florida warmth and winters. Remember, this is the second auto on the whole face of the earth (so far as I have been able to learn) that is propelled by wind power. I feel a thrill every time I look up at the beautiful windmill; and every mile I ride in the electric auto I have a *succession* of thrills. Both of these beautiful pieces of machinery are but the realization and culmination of the two playthings of my boyhood.

I think I may confess to you, dear friends, one *more* reason for thanking God

from the very bottom of my heart. The companion of my boyhood and kind counselor of my early manhood is still with me by my side; and still to me, as described in the good book, "Her price is far above rubies;" yes, indeed, or windmills and electric autos.

How about the garden? Well, Wesley was offered such big pay (on account of the war) that the garden was nearly a "wilderness of weeds" when we arrived. He didn't even get around to harvest the corn; but the Florida rats did a very good job, leaving us the cobs to show there *was* corn. There were two crops that thrived in spite of the wilderness of weeds—the roselle, or "Florida cranberries," of which I have said so much in past winters, and sweet potatoes. The roselle was ready to gather when we arrived. The sweet potatoes came up all over "volunteer," and in spading up the beds for our crops we find more fine potatoes than we can use at present. Some time in October Wesley planted one bed of Irish potatoes, and there are a few now as large as hens' eggs; but as they are growing thriftily it will not pay to disturb them just yet. Irish potatoes in the groceries are 75 cents a peck, and *some* of them are badly scabbed at that. In the last 10 days we have planted peas, corn, snap beans, turnips, onion-sets, etc.; and with the abundant summer show-ers, all (except the corn) are up so as to present a most beautiful picture from the top of the tower of the windmill, 50 feet high. Why does not everybody down in Florida grow his own potatoes (and other garden stuff) as we do, instead of paying 75 cents a peck for poor ones? I suppose it is because they think it is "too much trouble," and do not *love the work* as I do. Of course, we may have a frost as we did a year ago; but we have managed so we have suffered very little loss by frost so far during past winters.

THE FLORIDA HOME: ELECTRIC WINDMILL.

Today, Dec. 9, I am 79 years old. Yesterday I walked fully six miles, and then, instead of feeling tired, I felt more like walking than when I started. Because the wind didn't blow with sufficient force for several days, the auto "ran out of juice," so Mrs. Root (she is 77) and I both decided to walk a distance of a little over a mile to church—I walked also to the evening service. It still remains to be tested how many miles per day the average Florida wind will give.

GROWING YOUR OWN GARDEN SEEDS.

Once more I am strongly impressed with the importance of saving seed from your

own garden, especially with beans, peas, and corn. When gathering beans and peas for the table or market, save carefully for seed every pod that is overripe, and when planting time comes another season, just contrast these "home-grown" with what you buy of the average seedsman. Very often we put in an extra amount of seeds, because we have learned by experience that many seeds don't grow. *Should* they happen to grow, however, you have an expensive "thinning out" of the plants. I have just been hoing a row of lima beans, the seed having been brought from Medina. I put one bean just where I wanted a plant, and there is hardly a missing plant in the whole long row. It is just the same with all other seeds of our own growing. Now look at your seed catalogs, and see what you have to pay for peas, beans, and corn.

Just a year ago today, we had that awful freeze, the worst in Florida for about 25 years. Today, as I write, the mercury is 80, and tomatoes, beans, etc., are unharmed so far. New potatoes are 90 cents a peck; potatoes shipped in from the North, 70 cents.

BEEKEEPING IN FLORIDA UNDER PRESENT CIRCUMSTANCES.

Again and again I have letters asking about Florida as a place for beekeeping, and what part of Florida is most favorable, etc. The following clipping pretty well answers the above:

The A. I. Root Company, Medina, Ohio, has paid the beekeepers of Florida something over \$50,000.00 up to the present date for their honey crop for 1918. In answer to the question as to where are the best locations in Florida for bee culture, my reply is that no one can answer. There are certain localities that give tremendous yields during particularly good seasons. Sometimes these big yields come from the northern part of Florida, sometimes from the east coast, and again the west coast, and I think there is promise that a great heretofore unexplored or undeveloped field will be found in the vicinity of Lake Okechobee. Mr. Daniel Abbott of Bradentown, Fla., whose principal business is eggs and chickens, keeps 50 or 60 colonies of bees as a sort of a side issue. We have recently paid him over \$1200.00 for his honey crop. Mr. Notestein, also of Bradentown, who has something like 150 or 175 colonies, has received from us during the present summer a little over \$1,600.00 for his honey. Of course, the prices are just now away up. A few days ago I asked the price of peaches in one of our Medina groceries. When he replied, I gave a low whistle, and then he said: "Well, Mr. Root, the price is awful. It's just like honey. We used to sell a tumbler of the 'Airline Honey' for ten cents. Now it's 25 cents." I didn't find any more fault with the price of peaches. The shortage of sugar has made it exceedingly important that the honey that has been going to waste in the State of Florida, be just now gathered as much as possible. Of course, the price will go down after the war, but so will the price of everything else; but please keep in mind that bees where intelligently managed "both work for nothing, and board themselves."

A. I. ROOT.

AMERICAN FRUIT GROWER

Vol. XXVIII No. 10

OCTOBER, 1918

Ten Cent a Copy



Edited by Samuel Adams

A COURSE IN Fruit Growing FREE

Do you know how to plant, cultivate, prune, and care for your fruit trees and grapevines? Do you know the latest methods of berry and vegetable culture? Do you know how much can be made in beekeeping and poultry, conducted as side lines? These and many other questions on important fruit-growing subjects are found in every issue of the **AMERICAN FRUIT GROWER**. How many of these can you and the rest of your family answer? Yet you can get the best information that the best men of our time have to give on all these points, if you read the **AMERICAN FRUIT GROWER**.

More Than a Hundred Questions Answered in the December Issue CAN YOU ANSWER THESE?

1. What is the influence of air drainage?
2. Has the sod mulch method of orchard fertilization been successful?
3. What is a good method of holding back the berry crop?
4. Did the commission merchants swindle you?
5. How can you protect young fruit trees from rabbits and mice?
6. Do you know anything about apple bud selection?
7. How should a new fruit be introduced?
8. Has apple pomace any value?
9. Do sprayed trees bear a heavier crop of apples than unsprayed?
10. Why is a cement cave good for keeping apples?
11. When do the different varieties of peaches ripen?
12. What outside orchard work can be done at this season?
13. Do you know the correct method of pruning grapes?
14. What is your ideal of an orchard home?
15. How many grapevines would you plant to an acre and what distance apart?
16. Do you know how to have varieties of fruit identified?
17. What is the right age to plant apple trees?
18. Can biennial bearing be controlled?
19. Should the vineyard be cultivated?
20. Do you advise inter-cropping the young orchard?
21. How many reasons are there for fall spraying?
22. How are grapevines grafted?
23. Should we dynamite holes for tree-planting?
24. Why are chickens an advantage in a plum orchard?
25. Have you read about marketing cherries by parcel post?
26. How do you set out grapevines?
27. What kind of fruit should be stored?
28. What is the best kind of sprayer to buy?
29. Why should you order your fertilizer now?
30. Is the gas tractor suitable for eastern farming?
31. Are you planning to plant a new orchard?
32. What are the best varieties to order?

**CLIP
COUPON**

START A PAYING BUSINESS WE WILL HELP YOU

Ask yourself a frank question—would you take a practical, complete course in fruit-growing if it cost you but a few cents and a few hours' time, each month? By reading the *American Fruit Grower*, you can get just that. Send your order today. *Do It Now!* Subscription price three years \$1.00. One year 50 cents.

FILL OUT THE COUPON

AMERICAN FRUIT GROWER
329 Plymouth Court
Chicago, Ill.

Gentlemen: Enclosed find \$1.00 (or 50 cents), for which send me your valuable magazine for three years (or one year), as I want to take the free course in fruit-growing.

Name.....

R. F. D. or

Address.....

Town.....State.....

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents. per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Clover, amber and buckwheat honey in 60-lb. cans. C. J. Baldrige, Kendaia, N. Y.

FOR SALE.—Clover and buckwheat honey in 60-lb. tin cans. H. G. Gable, Romulus, N. Y.

FOR SALE.—Amber and buckwheat extracted honey in cans. I. J. Stringham, Glen Cove, N. Y.

FOR SALE.—No. 1 white extracted honey in No. 10 pails weighing 10 pounds gross, \$3.00 each f. o. b. here. B. F. Smith, Jr., Fromberg, Mont.

FOR SALE.—12,000 lbs. white extracted honey in 60-lb. cans, cased. Make offer. J. N. Minkes, Basin, Box No. 525, Wyo.

FOR SALE.—Clover and buckwheat honey, 60-lb. cans, two in a case. H. F. Williams, Romulus, N. Y.

FOR SALE.—Extra good quality clover or white aster honey, packed in 60-lb. tins, two in a case. H. C. Lee, Brooksville, Ky.

FOR SALE.—Michigan's Best extracted honey in packages to suit; white clover, raspberry, milkweed, buckwheat.

A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE.—60,000 lbs. strictly white-clover extracted honey, extra-light color, heavy bodied, fine flavor, in 60-lb. new cans.

J. B. Mason, Mechanic Falls, Me.

FOR SALE.—Clover, heartsease, No. 1 white comb, \$6.50 per case; fancy, \$7.00; extra fancy, \$7.50; 24 Danz. sections to case; extracted 120-lb. cases, 30c per pound.

W. A. Latshaw Co., Carlisle, Ind.

RASPBERRY HONEY.—This honey has just enough buckwheat honey mixed with it to color it some. It is from one of the Hutchinson apiaries, and has all the fine qualities and flavor that the Hutchinson honey is noted for. It is put up for sale in 60-lb. cans. Price, 25c a lb. Sample by mail 20c which may be applied on purchase of honey.

John Hutchinson, Lake City, Mich., R. D. No. 2.

HONEY AND WAX WANTED

Small lots of off-grade honey for baking purposes. C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

Beeswax wanted. Highest prices paid. State quantity and quality.

E. S. Robinson, Mayville, N. Y.

WANTED.—Comb and extracted honey, car lots and less. Mail sample, quantity, and price.

W. Morris, Yonkers, N. Y.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations.

M. Betancourt, 59 Pearl St., New York City.

WANTED.—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price, also buy beeswax. E. B. Rosa, Monroe, Wisconsin.

WANTED.—Comb and extracted honey, also beeswax. Send samples.

C. S. Fryer, 386½ Halsey St., Portland, Ore.

BEEWAX WANTED.—For manufacture into SUPERIOR FOUNDATION (Weed Process). Superior Honey Co., Ogden, Utah.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston.

M. V. Facey, Preston, Minn.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and sample of extracted.

Hoffman & Hauck, Inc., Richmond Hill, N. Y.

BEEWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

FOR SALE

HONEY LABELS.—Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—Hand-gathered sweet-clover seed now ready. Write for prices.

E. C. Bird, Boulder, Colo.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.

Superior Honey Co., Ogden, Utah.

FOR SALE.—One Cowan two-frame extractor and one honey tank, 36x28 in. deep, both good as new.

Oscar Skow, Dunlap, Iowa.

FOR SALE.—125 10-frame shallow supers, Root's goods, free from disease. Power circular saw and 2 H. P. gasoline engine.

E. R. Gooch, Farmersville, Texas.

FOR SALE.—Good second-hand 60-lb. cans, two to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

FOR SALE.—Root and Falconer goods, 8 and 10-frame size; new and second-hand. Send for printed matter.

A. Bradbury, Monument Beach, Mass.

FOR SALE.—Will send a sample pound of medium brood foundation for 60c, postage extra. Other grades at proportionately low prices. Send for complete price list. Wax worked for cash or on shares.

E. S. Robinson, Mayville, N. Y.

FOR SALE.—1000 Standard beehives in flat, 8- and 10-frame sizes, supers with sections, full depth and shallow extracting frames. Entire lot new and strictly first class. I will sell in large or small quantities at low prices.

J. O. Hallman, Helena, Ga.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) Full line of Root's famous goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Only about 100 dovetailed and 100 home-made hives with about that many supers of each kind left, as per our advertisement in Nov. and Dec. numbers of Gleanings. We offer 30 10-frame dovetailed standard hives, Hoffman frames, new, nailed and painted, \$2.00 each; new nucs and cages nailed, ready for use, 20 3-frame, 25c each; 57 2-frame, 20c each; 28 2-pound cages, 35c each; 148 2-pound cages, 25c each; 150 1-pound cages, 20c each.

The Hyde Bee Co., Floresville, Texas.

FOR SALE.—1,000 thick top bars, staple-spaced frames, regular, \$40. 10-oz. screw-capped jars, 2-gross crates, \$6.50 gross.

I. J. Stringham, Glen Cove, N. Y.

FOR SALE.—Giving up beekeeping—must sell immediately. Hives, extractor, new honey-cans, foundation, etc. No bees. Price list furnished.

H. Hirsch, Box 47, Sta. W., New York City.

FOR SALE.—100 3-story 10-fr. colonies, mostly 1918 Berry queens. Root hives, metal tops, wired frames. Your choice from about 130 colonies. Can furnish two good locations for 1919, alfalfa, sweet clover, and heartsease.

Harry A. Huff, Chapman, Kans.

FOR SALE.—16,000 sections, Roots' extra polished sections, style 2-beeway, $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{3}{4}$, at 20 per cent discount from January factory prices. 10-500 in the flat, balance in glass-side 18-section supers, with separators. Part have full foundation, some drawn combs, balance no starters. Supers free.

D. E. Lhommodieu, Colo. Iowa.

AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the **AUTOMOBILE DEALER AND REPAIRER**; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline engine repairs. \$1.00 per year. 15 cents per copy. Canadian subscriptions, \$1.50. Postals not answered. Charles D. Sherman, 107 Highland Court, Hartford, Conn.

WANTS AND EXCHANGE

WANTED.—Second-hand two-frame Cowan extractor.

S. F. Heavlin, Seville, O.

WANTED.—25 to 300 colonies of bees within 300 miles.

E. A. Harris, Albany, Ala.

WANTED.—Five to fifty bee colonies, in ten-frame dovetailed hives.

A. Arnold, Stelton, N. J.

WANTED.—Colonies of bees in Georgia or Alabama.

C. S. Gilson, Dalton, N. Y.

WANTED.—Colonies of bees in lots of anywhere from 5 to 500. State lowest cash price wanted.

H. G. Quirin, Bellevue, Ohio.

WANTED.—Barnes saw, or some saw suitable for small electric motor, for cash, honey, or bees.

E. W. Brown, Willow Springs, Ills.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax.

Superior Honey Co., Ogden, Utah.

WANTED.—Would like to buy or work on shares 300 colonies. Capable of managing efficiently.

Geo. Lesser, East Syracuse, N. Y., R. D. No. 3.

WANTED.—One four-frame extractor, second-hand, in good repair.

E. E. Cotant, Stanfield, Ore., Box. No. 22.

WANTED.—Foundation machines. State size, kind, condition, when bought new and price asked.

Grand Haven Pattern Works, Grand Haven, Mich.

One practically new No. 5 Oliver typewriter, perfect condition; for sale or will exchange for extractor or other beekeepers' supplies.

C. F. Strahan, Linwood, Nebr.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 36c cash, 38c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival.

The A. I. Root Co., Medina, Ohio.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1918 catalog. We will buy your share of the wax for cash or will work it into foundation for you.

Dadant & Sons, Hamilton, Illinois.

REAL ESTATE

FOR SALE.—Edgemont Fruit Farm and Apiary, one mile from prosperous town, highly improved, good buildings, all in bearing orchards of choicest varieties, from which is obtained a good income. If desired, will include our apiary, one of the best in the valley. We realized \$20.00 per colony the past season. Write for prices and terms.

W. A. Dennis, Olathe, Colo.

FOR SALE.—On account of failing health, I wish to sell my 80-acre farm, bees and supplies. 40 acres cleared, balance very easy to clear; $4\frac{1}{2}$ miles to town, 1 mile to school; on telephone line and rural route; good new residence and out-buildings; good well of soft water in engine room. Bees in 10-frame L. hives, frames nearly all wired; good supply of supers same size. This is an A No. 1 location for bees and honey. Price \$5,000 for the farm, bees and supplies; \$3,000 cash, balance on time. This is a bargain.

S. D. Clark, Weyerhauser, Wis.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list.

Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens.

W. G. Lauver, Middletown, Pa., R. D. No. 3.

FOR SALE.—Three-band Italian queens.

W. T. Perdue, R. D. No. 1, Ft. Deposit, Ala.

No more queens this season. Root's beekeepers' supplies.

A. W. Yates, Hartford, Conn.

Well-bred bees and queens. Hives and supplies.

J. H. M. Cook, 84 Courtland St., New York.

Golden Italian queens, untested, \$1.00 each, six for \$5.00.

E. A. Simmons, Greenville, Ala.

"She suits me" Italian queens, \$1.15 each from May 15th to Oct. 15; 10 or more, \$1.00 each.

Allen Latham, Norwichtown, Conn.

THREE-BAND ITALIANS ONLY. Untested queens, \$1.00; 6, \$5.00; 12, \$9.00; 50, \$35.00; 100, \$67.50.

H. G. Dunn, The Willows, San Jose, Calif.

FOR SALE.—Pure-bred Italian queens; also a few hundred pounds of bees. Queens ready April 15. Orders filled promptly or money returned.

O. P. Hendrix, West Point, Miss.

GOLDENS THAT ARE TRUE TO NAME. Untested queens, each, \$1.00; 6, \$5.00; 12, \$9.00; 50, \$35.00; 100, \$67.50.

Garden City Apiaries, San Jose, Calif.

Three-banded Italian queens and bees by the pound, also nucleus, in Root's shipping-cases, if preferred, or buyer furnish own cages. Send for price list.

J. A. Jones & Son, Hope Hull, Ala.

FOR SALE.—Golden Italian queens which produce gentle yellow bees, the hardest workers we have known. Untested, \$1.00, tested, \$1.50. Wildflower Apiaries Co., Trust Bldg., Little Rock, Ark.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. Brockwell, Barnetts, Va.

Red clover Italian bees and queens in one and two-pound packages for sale. Bees that produced for N. A. Kimery of Liberty, N. C., \$2,000 worth of red clover seed first crop. The M. C. Silsbee Co., Avoca, N. Y., says: "Bees purchased of you last season produced over \$50 worth of honey per colony 1918 crop." These colonies all headed with our queens. For truth of this statement we refer you to the above-named parties. We strictly breed for honey-gathering qualities and beauty, last but not least for hardiness. We try to please our customers. Write your needs. May and June delivery.

H. B. Murray, Liberty, N. C.

HELP WANTED

WANTED.—Good experienced man; also some good helpers. Good chance for willing workers. Penn Co., Penn. Miss.

WANTED.—Man who thoroly understands the production of extracted honey, sober, industrious and agreeable. Top wages to the right party. F. A. Young, Box 465, Mountain Home, Ida.

WANTED.—Two bright, intelligent hustlers, who want to learn bee business. Will teach you the business, good board and home in village, and some wages. Up-to-date equipment including auto truck. D. L. Woodward, Clarksville, N. Y.

WANTED.—Men of energy, character, and clean habits, as helpers in our ten apiaries, over 1,000 colonies, crop in 1918 over 100,000 pounds. Best chance to learn. Write immediately, giving age, height, weight, experience, references, and wages. *all in first letter.* Need one experienced man and students. E. F. Atwater, Meridian, Idaho.

SITUATIONS WANTED

WANTED.—A position in apiary in Southern California, by an experienced hand. Want place to live. Address

E. C. Crowfoot, Fleming, Box 84, Colo.

WANTED.—Married man, 29, has had five years' experience as beekeeper, one year as commercial queen-breeder for large county in California, wishes position in western states with extensive beekeeper. W. C. Forcher, 810 Klamath St., Denver, Colo.

TRADE NOTES

SECONDHAND OBSERVATION HIVES.

A SURE BARGAIN. ORDER EARLY AND AVOID DISAPPOINTMENT.

4 1-Fr. Old-style Observation Hives, no super \$2.50
1 1-Fr. Danz. Observation Hive, no super... 2.00
1 1-Fr. Danz. Observation Hive with super... 2.50
1 8-Fr. Danz. Observation Hive with super... 6.00
Also a number of Hand Bottom-boards each 8-Fr. and 10-Fr. in the flat; if interested write for prices.

THE A. I. ROOT CO., Medina, Ohio.

BEE CANDY This specially prepared food for bees has given satisfaction wherever used. If you have any colonies that are short of stores by all means use this candy. Send for circular and catalog of supplies.

H. H. JEPSON

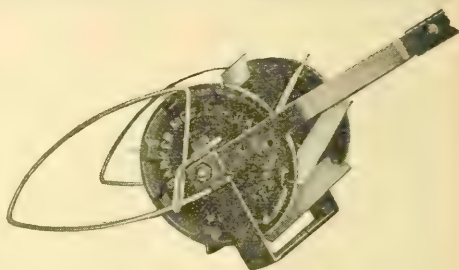
182 Friend Street

Boston, Mass.

BEES

We furnish full colonies of bees in chaff or single-walled hives, nucleus colonies or bees by the pound in season. Prices on application. Ten-oz. screw-capped jars, two gross crates at \$7.50 a gross.

I. J. STRINGHAM, GLEN COVE, N. Y.



THIS MACHINE Makes Gardening Pay

You Can Keep Your Garden in Perfect Condition All Season Without the Tiresome Work.

BARKER WEEDER, MULCHER AND CULTIVATOR

Is pushed along the rows at an ordinary walk. Blades revolving against stationary knife (like a lawn mower) destroy the weeds and at the same time break up the clods and crust into a porous, even mulch.

For deeper cultivation, it has easily attached shovels—making three garden tools in one.

"Best Weed Killer Ever Used"

The BARKER chops the weeds and upturns their roots. Works close to plants. Guards protect the leaves. Cuts runners. Leaves a mulch which draws and holds the moisture at the plant roots. Send us your name and address on the coupon below and we'll mail you our

FREE BOOK

Tells about this wonderful machine and what users think of it; also authentic information on care of gardens. Fill out the coupon and mail it now, or send postal.

BARKER MFG COMPANY
DEPT. 10 DAVID CITY, NEB.

Barker Mfg. Co., Dept. 10, David City, Neb.
Gentlemen:—

Send me, postpaid, your FREE Booklet and Factory-to-User Offer.

Name

Postoffice

State

AROUND THE OFFICE

M.-A.-O.

Floyd Markham whats secretary of the National Beekeepers' Association in a letter to Gleanings winds it up this a way: "P. S. to M.-A.-O.—I got a dandy skunk last week but I didn't try any of Mel Pritchard's 'scentsless' tricks. No! I just kept to the windward and basted him on the head with a stick; but 'just afore I done it' I run away."

Mel, I aint myself a carin about it at all whatever so I aint, nor what else ever happens to you. But are you a likin the way Markham spelt that word that means havin no scent? I wouldn't like the sound of it if I was you so I wouldnt.

* * *

Some way I have a feller feelin for W. A. Latshaw livin at Clarion, Mich. It's because he seems to be in trouble most of the time that I warm up to him. He's mostly had trouble with fillin his honey orders and with

(Continued on page 55.)



The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

BEEKEEPERS
ATTENTION!!!

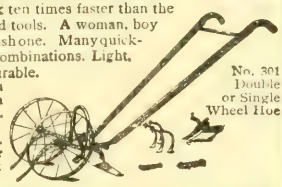
The use of the best and most up-to-date equipment is a big factor in successful honey production.

Begin 1919 preparations by ordering equipment now. Delay spells loss.

We have a large stock of high-grade supplies Will be glad to quote prices on receipt of a list of your requirements.

Western Honey Producers

1929-1931 Fourth Street
Sioux City, Iowa



IRON AGE
GARDEN TOOLS

Answer the gardener's big questions:
How can I grow plenty of fresh vegetables with my limited time? How can I avoid backache and drudgery?

IRON AGE Wheel Hoes and Drills
Do the work ten times faster than the old-fashioned tools. A woman, boy or girl can push one. Many quickly-adjusted combinations. Light, strong and durable.

Will help you cut the high cost of living. Broad range of prices. Write us for free booklet today.

No. 301 Double or Single Wheel Hoe

Bateman Mfg Co., Box 44G, Grenloch, N.J.

BEE - SUPPLIES

FALCON LINE

We carry the largest supply in our section. Send us your inquiries.

Lowest Prices, Quality Considered

C. C. Clemons Bee Supply Co.
128 Grand Ave. KANSAS CITY, MO.

BEE SUPPLIES
AT WHOLESALE

All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. Send for a price-list. I can save you money.

Will Take Bestwax in Trade at Highest Market Price.

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

PENNSYLVANIA BEEKEEPERS

We can supply you quicker and better than the factory or any of its branches. Order your supplies now. Right near the middle of the State, with four railroads going in all directions, we promise quick deliveries.

CARLOADS OF ROOT'S GOODS

Our Special Catalog is something new. They are being mailed now. If you fail to get yours, drop us a card with your name and address. Just the things needed for beekeepers in Pennsylvania, not a lot of other things to confuse.

Our 22 years' experience in beekeeping, and selling carloads of bee supplies are combined in the preparation of this circular.

THE NEW SIMPLEX SUPER

is a feature. It is the P super for the Plain Square Sections, greatly simplified. Section Holders and Fences full length, doing away with the fussy wedges, etc. Hives, Sections, Foundation, Extractors, Smokers, etc.

PROTHERO, BAILEY & GOODWIN

*Pennsylvania Distributors of
Root's Bee Supplies*

DUBOIS -- PENNSYLVANIA

Around the Office—Continued

gettin help and with the rest of the world. He seems to be plain spoken too for the other day when writin to a complainer of his'n concernin his help leavin him and a good share of the human race risin up agin him, Latshaw said: "I assure you that nothing is being done intentional to cause trouble on my part as I have plenty of trouble in the natural course of events without that." Then he tells about honey bein stolen from him and his enemies a pesterin of him and says: "However, now I am getting a line by which I may be able to be dragging them around by the hair of the head before long, then I look for smoother sailing for awhile at least." I can't help warmin up to Latshaw when I read these deep down sentiments of his, for they ring true and bile up out of real experience. They aint jest theory like so much beekiepin literatoo is. Mr. Latshaw knows what he's talkin about, and knows trouble when he sees it, I bet. A man like me or Latshaw knows exactly what it is not to do nothin intentional to cause trouble on our part and yet get it in the natural course of events in bucketfuls con-

(Continued on page 57.)

SWEET CLOVER

White Blossoms; the greatest money-making crop of today. Big money for the farmers who grow it. Builds up land rapidly and produces heavy, money-making crops while doing it. Excellent pasture and hay; inoculates land for alfalfa. Easy to start; grows on all soils. Our seed all best scarified hulled, high-germinating and tested. Quality guaranteed. Write today for our big, Profit-Sharing Seed Guide, circular, free samples. Address

American Mutual Seed Co., Dept. 951 Chicago, Illinois

Hill's Evergreens Grow



All hardy stock—twice transplanted—root pruned. Protect buildings, stock, crops.

Hill's Evergreen Book, illustrated in colors, Free. Write today.

D. Hill Nursery Co., Box 2463
Dundee, Ill. Evergreen Specialists

SWEET

CLOVER

Easy to start. Grows anywhere. Not only a good fertilizer, but produces immense crops. Big money-maker. Crops worth \$50 to \$125 per acre. Greatest forage plant that grows. You cannot miss it by sowing our superior scarified seed.

A. A. BERRY SEED CO., Box 966

Don't delay writing for our 1919 catalog (116 pages) and circular giving full particulars. We can save you money on guaranteed seed.

CLARINDA, IOWA

THE DOMESTIC BEEKEEPER

Successor to the Beekeepers Review, published monthly at Northstar, Michigan, at \$1.00 per year, by E. D. Townsend. Published for the honey-producer, by a honey-producer. Every honey-producer should know and subscribe for the *Domestic Beekeeper*. The *Domestic Beekeeper* will help you to produce a crop of honey; when harvested, it will help you to dispose of it to a good advantage. Thousands of dollars have been saved beekeepers by following the advice of the *Domestic Beekeeper* in the sale of honey. If you have received less than 25c per pound, in 60-lb. cans, for your best 1918 crop of extracted honey, you are likely not a subscriber to the *Domestic Beekeeper* yet, have not followed the advice of the Editor. Isn't it about time that you get out of that "rut" and sell your honey to a better advantage? The *Domestic Beekeeper* for 1919 will advise you from month to month what the Jobber is selling for and instruct you how to secure HIS price for your product, which is usually two or three cents per pound more than HE will pay you. Get next to this better way of selling before your 1919 crop is ready for the market, by subscribing for the *Domestic Beekeeper* at once.

From many kind letters received, we will submit three late ones which will give the reader a fair idea of what our subscribers think of the *Domestic Beekeeper*.

Remember that it does not cost *Domestic Beekeeper* subscribers a cent to sell their honey to a good advantage, as we advertise it for them free of cost.

Why not every one of the readers of GLEANINGS dig up a dollar and send it in at once and secure the twelve numbers of the *Domestic Beekeeper* for 1919. The three letters referred to above follow:

Liberty Center, Ohio, Nov. 12, 1918.

The *Domestic Beekeeper*: I have for sale 16 60-lb. cans of clover honey that you may list in your free list of those having honey for sale. I take this opportunity to thank you for selling my last year's crop.

I think the late W. Z. Hutchinson and yourself have done a good many more kind acts to beekeepers than any other publication I know of. I expect to read your *Domestic Beekeeper* as long as I keep bees and can dig up the price. I surely appreciate your kindness.

S. A. PALMER.

Continental, Ohio, Oct. 31st, 1918.

The *Domestic Beekeeper*: Please discontinue my name in your honey-for-sale column, for I am all sold out and am returning checks every day. Wish I could have filled all the orders which came, as they surely came with a rush,

and one large order by telegraph, which was filled the next day.

Your journal is surely the honey-market journal in the whole country, as it surely keeps tab on the market.

Had I seen the October number before naming a price, would have asked 27c and am sure it would have all gone at that price, as I could have sold three times as much at the 25c mark.

Enclosed please find a dollar for 1919 subscription to the *Domestic*, and thanks for your valued help.

JUDSON A. JONES.

Bagnall, Michigan, Nov. 11th, 1918.

The *Domestic Beekeeper*: Please discontinue my name in your free column of those having honey for sale, as I am all sold out. Sold my white and buckwheat extracted honey in 60-lb. cans f. o. b. here at 25c per pound. Thanking you for past favors, I remain,

C. J. FREEMAN.

Send in your dollar at once, to

The DOMESTIC BEEKEEPER, Northstar, Michigan, for your 1919 subscription.

BEES, QUEENS AND SUPPLIES

A FULL LINE OF ROOT'S GOODS. A COMPLETE LINE MANUFACTURED BY US FROM CYPRESS, THE WOOD ETHERAL. NO SUCH HIVE COVER ON THE MARKET. SEND FOR CATALOG. BEESWAX WANTED.

THE PENN COMPANY, PENN, MISS.

Important for New York, Pennsylvania and New England Beekeepers

We carry a complete stock of Lewis Beeware and Dadant's foundation, Root's Extractors, Bingham Smokers and Honey Knives, Tin Cans and five- and ten-pound pails, and a very complete line of Glass Honey Jars. As we are lo-

cated on the Main Trunk Lines, we can give you prompt service; however, order your supplies early as transportation is slow at its best. Send us that list, and we will quote you, giving you the benefit of our early-order discounts.

Deroy Taylor Company, Newark, Wayne Co., New York

SOUTHERN HEADQUARTERS

ITALIAN BEES AND QUEENS

1 lb. bees, no queen..... \$2.25
2 lbs. bees, no queen..... 4.00
For 50 or more, 20c less on each swarm.
These go express charges collect, at buyer's risk.
If wanted by Parcel Post add 50c for 1 lb. and 75c for 2 lbs., for guaranteed safe arrival at your postoffice. Shipper reserves right

to demand return of empty cages at his expense.

1 Untested Italian queen..... \$1.25
12 Untested Italian queens..... 13.25
50 or more, each..... 1.00
Tested queen..... 2.00

No disease has ever been in my vicinity.

W. D. ACHORD :- :- FITZPATRICK, ALABAMA

SAVE YOUR MONEY

WILL ALLOW 15 PER CENT OFF ON ALL
ORDERS RECEIVED DURING JANUARY
AND FEBRUARY

W. H. FREEMAN, PEEBLES, OHIO

Send us a list of goods you want to buy, on which we will quote the new prices and return same for your approval. While the printer is getting out our catalogs we want to have your goods on the way and avoid delay during the busy season. Kretschmer and G. B. Lewis make.

Around the Office—Continued

tinoous. I'll bet, too, he don't get out the house one mornin in a dozen afore trouble starts onto him or domestic criticism gets agoin and he goes down to the old honey shop haired up and as owly as the mostly venerable U. S. Senate when it gets to considerin the present president of the U. S. But where I feel myself warmest toward Mr. Latshaw is in his disposishun toward them as evidently he regards as unfriendly to himself. I like the general idea of gettin them by the hair of the head and then keepin a good holt and startin the draggin process and keepin it a goin as long as the hair holds. It ought to be a correctin infloouence. It also ought to be satisfactory to Latshaw. It would be to me if the draggin was kept up long enough. Some might say it aint right and it lacks fine feelin. They aint

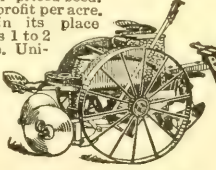
(Continued on page 59.)

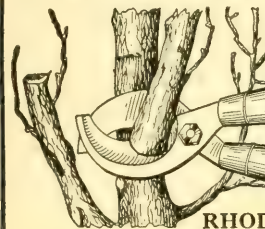
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Farm, Garden and Orchard Tools
 Answer the farmers' big questions, How can I grow crops with less expense? How can I save in planting potatoes? How make high priced seed go farthest? The **IRON AGE Potato Planter** solves the labor problem and makes the best use of high priced seed. Means \$5 to \$50 extra profit per acre. Every seed piece in its place and only one. Saves 1 to 2 bushels seed per acre. Uniform depth; even spacing. We make a full line of potato machinery. Send for booklet today.

**No Misses
No Doubles**

Bateman M'f'g Co., Box 20B, Grenloch, N. J.





**RHODES DOUBLE CUT
PRUNING SHEAR**

Patented

RHODES MFG. CO.,
528 S. DIVISION AVE., GRAND RAPIDS, MICH.

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.

TEN PER CENT EARLY ORDER CASH DISCOUNT

Prices changed August 1st and the new price list is ready for mailing. Send for your copy. The early order cash discount is 10 per cent.

PLACE YOUR ORDER NOW

for the goods wanted this winter. Exact prices quoted on the list of goods you want. Honey and beeswax taken in exchange for bee supplies.

M. H. HUNT & SON

510 NORTH CEDAR STREET

LANSING, MICH.

It is Still Improving

The American Bee Journal is indispensable to every live beekeeper. Send for a sample copy and see for yourself the many practical features which it offers.

The market page is alone worth the subscription price. Every month appears an exhaustive survey of the markets, based on information received direct from more than two hundred reporters in all sections of America.

\$1 per year, worth five times the price.

Feature articles detailing beekeeping conditions in all parts of the country.

Illustrated articles on the honey plants.

Answers to questions asked by our readers.

A free legal service department.

Photographs illustrating beekeeping in many states and foreign lands.

The American Bee Journal is edited by C. P. Dadant and Frank C. Pellett, both practical beekeepers, authors of bee books and men of wide travel and observation.

Books every beekeeper should have:—

Langstroth on the Honeybee, revised by Dadant	\$1.50
First Lessons in Beekeeping by C. P. Dadant	1.00
Thousand Answers to Beekeeping Questions, C. C. Miller	1.25
Practical Queen Rearing by Frank C. Pellett	1.00

Add seventy-five cents to the price of any of these books and get the book and the American Bee Journal one year.

American Bee Journal

Hamilton, Illinois

Around the Office—Continued

in no posishun to judge, they aint. They don't know Latshaw's provocashun. They don't know who's been pesterin him or how long. I know jest how he probably feels about it all, and I hope the line he says he was a gettin on the hair pullin plan didn't slip nowhere nor break. It ought to do the business. I like the whole idea entire. I like Latshaw better the more I think of it. I only wish squash bugs and bass as won't bite had hair of the head. I don't know but what I wish my old garden patch, my hoe and my lawn mower had too. I see more uses for Latshaw's plan the more I think of it. I'm goin to write him as to how to get a line on it and ask him too if it allays works smooth on men bigger'n what he is. I can see objections to the plan sometimes if it wont work sure on big size men allays certain.

P. S.—I am also goin to ask Latshaw for about how long a while after applyin the hair-bolt-and-drag plan on a feller's hostiles a body can expect smother sailin. He

(Continued on page 61.)

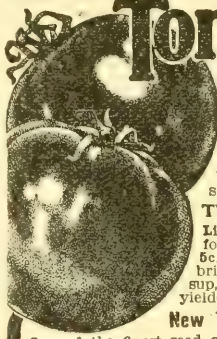
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"Best" Hand Lantern



A powerful portable lamp, giving a 200 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. **THE BEST LIGHT CO.**
306 E. 5th St., Canton, O.

LIVINGSTON'S FAMOUS Tomatoes



Gives satisfaction. Stand for highest yield and quality. We originated sorts for all purposes and all tomato growing sections. We grow more tomato seed than any seedsman in the world.

TWO BEST VARIETIES
Livingston's Globe, finest pink, for slicing and shipping, pkt. 5c. Livingston's Stone, finest bright red, for canning and cat-sup, pkt. 5c. Both immense yields. Try them.

New 112-Page Catalog FREE
One of the finest seed catalogs published. Gives truthful descriptions and helpful cultural directions of the most reliable sorts of vegetable, flower and field seeds. Tells when to plant and how to grow big crops. Write for Free copy.

Livingston Seed Co. 647 High St. Columbus, Ohio

A PATRIOTIC BEEKEEPER

**WILL
HEED OUR
GOVERNMENT'S
PLEA TO KEEP
MORE BEES &
KEEP THEM
BETTER**

To do this it is essential to get your supplies now and do all preparatory work during the winter months, then spend your time next summer *Producing Honey*.

The profit is worth the effort.

Besides you can save money by ordering now. Get our prices and early order cash discounts.



THE KRETCHMER MFG. COMPANY
301 11th STREET, Department G COUNCIL BLUFFS, IOWA

Our Food Page—Continued from page 27.

oven. If it is a commercial graham flour, from which much of the bran has been sifted, a larger proportion of graham may be used. This proportion is about right for the home-ground flour.

SOUR MILK BUCKWHEAT GRIDDLE CAKES.

1 qt. sour milk	1½ teaspoons salt
3½ teaspoons soda	1 tablespoon melted
3 cups buckwheat flour	shortening

Mix the soda and salt with the flour and sift into the sour milk, beating well. Add the melted shortening last. If the batter is too thick, thin with a little water. If it is too thin, add more flour. Part white flour may be used, in which case it will be necessary to use a little more. Bake on a hot griddle and serve at once with plenty of honey. The shortening may be omitted, but with it the cakes are less apt to stick.

STEWEED PRUNES AND APRICOTS.

½ lb. dried apricots	½ lb. dried prunes
¼ to 1/3 cup honey	

Wash the apricots and prunes thoroly, cover each with water and soak several hours, preferably over night. In the morning place the fruit on to cook in separate dishes and simmer very slowly until tender. The prunes will probably require a longer time to cook than the apricots. When done, combine them, sweeten to taste with honey and cool before serving.

FRUIT CUP.

1 cup pineapple	1 banana
2 oranges	1 cup canned peaches
½ cup dates	honey

Cut all the fruit in small pieces and combine, measuring the dates after they are stoned and cut up. Sweeten to taste with honey and serve cold in sherbet glasses. It is difficult to give the amount of honey, as some canned fruit is much sweeter than others.

All measurements level.

Bees Not Proved Guilty.—Continued from p. 16.

early in the spring, and is often found in large numbers on the opening flower buds and young stems. We know, too, that the aphid is a sucking insect, that it punctures the skin with its tiny beak and sucks the sap. These opening buds and leaves are often covered with honeydew which the aphids exude from their bodies, and which, according to Professor Gossard, furnishes a good medium for the growth and distribution of the blight germs. May it not be,

therefore, that a study of the green aphid in its connection with ants, will furnish a much more promising field for investigation along this line than will the honeybee? My opinion, based upon a study of these species of insects, is that if we can eliminate the apple aphid and other sucking species, notably leaf hoppers, from our orchards, we shall have made a long stride toward eliminating the fireblight.



Established 1885

It will pay you to get our catalog and order early.

Beekeepers' Supplies

The Kind You Want and The Kind That Bees Need.

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.

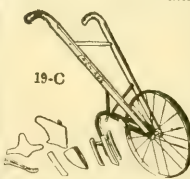
High Hill, Montgomery Co., Mo.

IRON AGE

GARDEN TOOLS

Answer the "war gardener's" big question: How can I produce the most food in spare moments? How meet increased costs and war taxes?

IRON AGE Wheel Plow and Cultivator



Easy to push, fast, thorough, low in cost. Opens and covers furrow for seed and fertilizer. Cultivates wide or narrow rows. Turns soil and covers scratch foods in poultry yards. 30 other Iron Age Combinations. Send for free booklet today, and learn how to garden the modern, easy way.

Bateman M'f'g Co., Box 208 Grenloch, N. J.



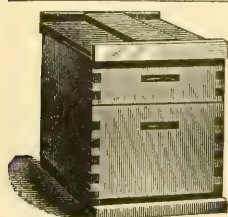
64 BREEDS Most Profitable chickens, ducks, geese and turkeys. Choice, pure-bred, hardy northern raised. Fowls, eggs, incubators at low prices. America's greatest poultry farm. 26 years in business. Valuable new 112 page Poultry Guide and Catalog free. Write today.

R. F. NEUBERT Co., Box 837 Mankato, Minn.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.



Early-order Discounts will

Pay you to Buy Bee Supplies Now

32 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri

Around the Office—Continued

dont say the effect is permanent, I notice. Paps he dont drag 'em long enough.

* * *

"Does Mel Pritchard live inside the hive? Mr. Miller isn't the only one who was glad to see his picture. Thanks for it."

—Mrs. E. A. Brown, West Chazy, N. Y.

He don't. He is just as liable to be found around a skunk hole as a bee entrance or stoopin meditative over a ant's nest. But wherever he is he's a thinkin and a watchin some big or little critter's habits. Me and he are hostile, but I can't deny he knows somethin and is a close-on observer.

* * *

J. I. Emery of Meriden, Ct., contributes a real jule to my department by sendin me a clippin from one of the big mail-order houses' catalogs. It is a picher of a Porter bee escape alongside which is printed this enlightenin descriphun: "Bee escapes facilitate the moving of honey from the hive and supers. The escape is fastened to a board after making a suitable hole in some tree. Directions for use are sent with each one. Shipping weight, 1 oz. Price each,

(Continued on page 63.)

BE CAREFUL In selecting your Foundation [stock of any Breed

Rufus Red Belgian Hares

Only Pedigreed Registered Stock. Prices Reasonable

JOSEPH BLANK

428 Highland Ave.

Mount Vernon, New York

Complete Line of

Beekeepers' Supplies

Catalog on Request

F. Coombs & Sons, Brattleboro, Vt.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—

Maine Central and Grand Trunk.

Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine.
J. B. MASON, Manager.



For Sixty-five Years thousands of farmers and gardeners have bought and planted vegetable and farm seeds, fruit and shade trees, plants and shrubs, that have been grown by

The Storrs & Harrison Co.

America's Largest Departmental Nursery

1200 acres of fruit and shade trees, evergreens, shrubs and plants; 48 greenhouses for house and bedding plants, palms and roses.

Our 1919 Seed Catalogue

is a complete book of seeds, fruit trees, berry bushes, shade trees, evergreens for farm planting. Everything needed can be ordered from its pages; send for free copy.

The STORRS & HARRISON Co.

Box 533, Painesville, Ohio



GIANT TOMATO-CUCUMBER-PEANUT-10c

Here Are Seeds of Three Valuable and Interesting Varieties You Should Grow In Your Garden This Year.

Giant Climbing Tomato—Is one of the largest grown. Vines grow very strong and will carry an enormous weight of fruit, very solid, crimson color; specimens often weighing 2 to 3 lbs. each.

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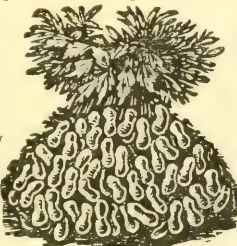
Special Offer: I will mail you a regular sized Packet of Tomato, Cucumber and Peanut for only 10c, or 3 Packets of each for 25c.

My new Seed Book of Garden Seeds is included free. Order TODAY.

F. B. MILLS, Seed Grower, Dept. 20 Rose Hill, N.Y.



Giant Climbing Tomato



Early Spanish Peanuts



Climbing Cucumber

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Your Duty—Do You Know It?

It is to get ready for the coming season and be ready for the first honey flow. This will net you profits. Prepare your bees for a big year and take no chances. Get the best to do with and have the best results.

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We get the beekeepers ready for the big season. Supply them with the best of everything with which to work and get the best results. Send us a list of your requirements for quotation. TO DELAY MEANS LOSS TO YOU. "Falcon" service cannot be beat. Catalog and Simplified Beekeeping on request.

W. T. Falconer Manufacturing Company

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QUEENS BEES BY THE POUND QUEENS

Three-banded and Golden Italians. The best of either. They are hustlers—gentle to handle, cap their honey white, are very resistant to European foul brood. Now that *peace* has been declared, and our boys will be home from service, we believe the *Express* companies will be able to deliver. So we are also quoting prices by *Express*.

Booking orders now, one-fourth down, balance at shipping time.

BY PARCEL POST, PREPAID

One 1-pound package.....	\$2.90
One 2-pound package.....	5.00
One 3-pound package.....	7.00
Select Untested Queens, \$1.50 each	Tested \$2.50

BY EXPRESS F. O. B. CALLEEN

One 1-pound package.....	2.40
One 2-pound package.....	4.25
One 3-pound package.....	6.25
Select Untested Queens, \$1.50 each	Tested \$2.50

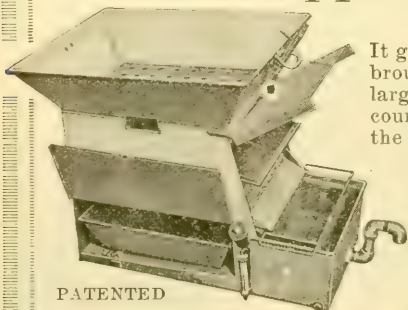
Ten per cent discount on orders amounting to 25 packages or more. Add price of Queen wanted when ordering packages of bees. Breeders, \$5.00 and \$10.00. Send for Free Circular giving details. Reference: The Guaranty State Bank, Robstown, Texas, and The City National Bank, Corpus Christi, Texas.

NUECES COUNTY APIARIES, CALLEEN, TEXAS

E. B. AULT, Proprietor

THE GREAT YEAR OF 1919 IS HERE, AND SO IS THE

Severin Capping Melter & Separator (COMBINED)



It got a fine start in 1918 from advertisements which brought inquiries and orders from producers in all large honey-producing sections, in this, and other countries. Get the best—it pays in the end, just as the best Extractor does. Saves time, labor, and fuel.

Seeing the great need and demand for these melters, I am better prepared to fill orders than in 1918; but, owing to the great need of copper by the Government, I am limited on supply material, as I use only the best. Handled right, this melter will do the work where others fail.

F. J. Severin -:- Imperial, Calif.

Around the Office—Continued

17c." By the shippin weight given, I calculate the mail order house don't send the tree for borin the hole in. How can anybody work it if they don't?

* * *

That feller Somebody of Rutherford, New Jersey, writes two pages urgín my picheer and name be printed in Gleanings. Nothin doin. I aint good lookin, and I aint good feelin except when I'm fishin and then there aint no pesterin cameryman around. No, sir, my picheer'll never be in Gleanings. I aint in no way stuck on myself as I know of. Only one man on Gleanings force knows who I am and he won't tell. The Roots nor Iony Fowls haint any more'n a guess who I am, so they haint.

Order Bee Supplies EARLY

We can supply you with the best of everything. Dovetailed Hives, Supers, Frames, Honey Sections, and Comb Foundation. Be prepared for the coming season. Our catalog ready Jan. 10.

Send for it.

August Lotz Co., Boyd, Wis.

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Several New Features.

Based on our experience as the oldest mail order seed concern and largest growers of Asters and other seeds in America. 550 acres and 12 greenhouses in best seed growing section. Our Guide is full of helpful information about planting, etc.—an invaluable aid to a successful garden. Illustrates and describes leading Vegetables, Flowers, Farm Seeds, Plants and Fruits. This book, the best we have issued, is yours, absolutely free.

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The Flower City

ROSES

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FOR hardy, vigorous, free-blooming rose-plants get Roses of New Castle. Grown on their own roots in fertile soil. We are expert rose growers with a lifetime of experience back of us. Every desirable rose in cultivation included in our highly select list—an immense stock at right prices. Our rose book for 1919, "Roses of New Castle," is a complete book on rose culture. Contains information and advice that will help you. Elaborately printed in colors. Send today for your copy—a postal will do. Address

HELLER BROS. CO., Box 118, New Castle, Ind.

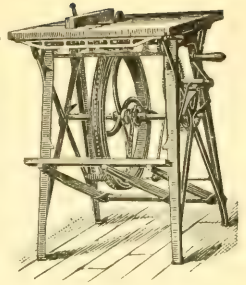
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

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BANKING BY MAIL AT 4%

HOW TO Help America BY BANKING YOUR MONEY

In these times every true American appreciates any suggestion which will assist him to increase his co-operation with our country's cause.

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Any funds deposited with us directly contribute to America's financial strength—and you receive 4 per cent interest, compounded twice a year.

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Information*

THE SAVINGS DEPOSIT BANK CO. MEDINA, OHIO

A. T. SPITZER, Pres.
E. R. ROOT, Vice-Pres.
E. B. SPITZER, Cashier

ASSETS OVER ONE MILLION DOLLARS

Don't Send A Penny



Choose either of these shoes and we will send a pair simply on your request. Don't send a penny—no need even for a letter. A post card will do. They are such tremendous bargains that we know you will want to keep them. But you decide after you get them. They go at our risk on approval. This special offer is made because you can't judge the splendid style, quality and value of these shoes from pictures. You must actually see them. If you don't consider them startling values, ship them back and we will refund your money.

Great Work Shoe

This shoe is built to meet the demand of an outdoor city workers' shoe as well as for the modern farmer. Send and see for yourself what they are. Built on stylish lace Blucher last. The special tanning process makes the leather proof against the acids in milk, manure, soil, gasoline, etc. They outwear three ordinary pairs of shoes.

Your choice of wide, medium or narrow. Very flexible, soft and easy on the feet. Made by a special process which leaves all of the "life" in the leather and gives it wonderful wear-resisting quality. Has double leather soles and heels. Dirt and waterproof tongue. Has heavy chrome leather tops.

Pay **\$3.85** for shoes on arrival. If, after careful examination, you don't find them all you expect send them back and we will return your money. No obligation on you at all. This is our risk, not yours. Order by No. X15012

**Order This Shoe
by No. X15012**

Remarkable Work Shoe Bargain

Same kind of shoes the soldiers wear. You know that means strong, durable, built for hard service. Will long outlast any ordinary shoes. Lace Blucher style. Special tanning process leaves all the "life" in the leather and gives it wonderful wear-resisting qualities; also makes it proof against acids of milk, manure, soil, gasoline, etc. Genuine Munson Last. Wide and comfortable. Smooth, soft, easy toe. Double oak solid leather soles and double wear leather heels. Color—Tan. The very shoe you want for real wear. Biggest value for your money. Stands all kinds of hard usage, wetting, etc. A wonderful outdoor and farm work shoe bargain. Size 6 to 13. Send today—no money. Pay **\$4.10** for shoes on arrival. See how well made they are. If you don't say this is the biggest shoe bargain you can find, or if for any reason shoes are not satisfactory, return them and we will refund your money. Be sure to give size, and order by No. X16014.

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Don't hesitate a moment. This sent-on-approval money-back offer saves you from any risk or obligation. Keep the shoes only if satisfied that they are unparalleled bargains. And send while these wonderful bargains are offered. Write today.



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This Shoe
by No.
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Dept. X1060 Chicago

Be Your Own Judge

No matter what the manufacturer CLAIMS, the final decision as to whose goods you buy is based upon the quality of the goods you have already purchased. You know better than any one else in the world whether they are satisfactory or not. Satisfaction, together with service, means repeat orders.

Root's Comb Foundation

is sold to you on this basis. It isn't merely the first order that we want --- it's the repeat orders that we are looking for. We are willing that our comb foundation be compared with any other make on the market. Then we want you to BE YOUR OWN JUDGE.

Root's Foundation

is made by the well-known Root-Weed Process---the same as all other good makes of foundation. But---
Being the originators of this process, as well as the sole manufacturers of the machinery which rolls out the foundation, we have the best facilities as well as the most experienced workmen for making this famous brand of goods.

The Wax We Use

is selected from large stocks. Only the best-flavored and lightest-colored is used for foundation. Inferior grades are disposed of thru the many commercial channels open to us.

SOME MAKERS CLAIM, as a talking point, that they use no acid in refining their wax. After repeated tests, and on the advice of the most competent chemists, we have found that nothing will cleanse, purify and sweeten the wax like melting it in boiling water and adding a very small amount --- 1-18th of one per cent --- of sulphuric acid. After the refining process is complete, and the acid washed out (as soap is rinsed out of clothes after being washed), tests show that NOT A TRACE of acid remains.

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Chicago

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St. Paul

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Indianapolis

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Ordering Your Supplies Now

.. BY ..

ordering standard goods so as
to enable manufacturing plants
to increase production

.. BY ..

wintering your bees with care-
ful attention to their comfort
and safety

Get busy now and make up a list of your requirements
---take advantage of prevailing transportation condi-
tions, later on it may be more difficult to secure prompt
shipment. Remember, every pound of honey produced
will release its equivalent of butter or sugar for other
purposes of food.

INCREASE YOUR HONEY PRODUCTION
THE ITALIANS ARE OUR ALLIES

G. B. Lewis
Company



Watertown,
Wis.

Order from your nearest distributor

Gleanings in Bee Culture

Vol. XLVII

FEBRUARY 1919

No. 2



In February's Cold and —



the Same Apiary in August's Heat.

We are always in the market for HONEY and BEESWAX.
Do not sell until you have seen us.
We will pay you spot cash for anything you sell us.
Get our prices on cans and cases.

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Los Angeles, California
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Wholesale Dealers and Shippers of
EXTRACTED AND COMB
HONEY

CORNER DRUMM AND OREGON STREETS
SAN FRANCISCO, CALIFORNIA

WESTERN BEEKEEPERS ATTENTION!!

We pay spot cash for Honey and do not handle on Commission. Write us what you have or expect to have to sell, we buy any quantity. -- -- --

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1918. We are paying higher prices than ever for wax. . We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. . . Big catalog free.

Carl F. Buck

The Comb-foundation Specialist
Augusta, Kansas
Established 1899

"Griggs Saves You Freight"

TOLEDO

BEE SUPPLIES FOR NEXT SEASON'S USE

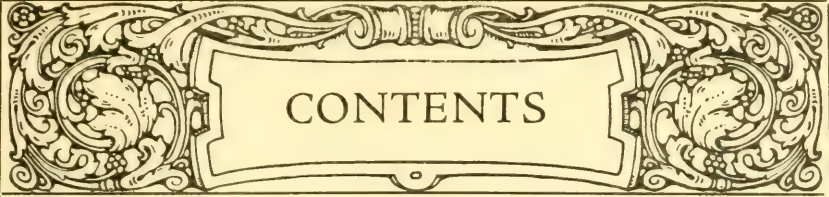
Place your order now and get the large early-order discount besides avoiding the spring congestion and delays which always come.

1919 Season will be the largest in history, owing to high prices received for honey, and all factories will be taxed to limit. Already our December orders are as heavy as last June. Can we count on your order? A list of goods wanted will bring back prices at once.

Better send your name for our new catalog when it is out.

HONEY AND BEESWAX always wanted, cash or in trade.

S. J. GRIGGS & CO.,
Dept. No. 25 Toledo, Ohio
"Griggs Saves You Freight"



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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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Editor Home Dept.

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Managing Editor

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SHIP NOW. If you have honey for sale, we want to buy it. Ten thousand producers in all parts of the world witness to the reliability of this house. No purchase too large or too small. We handle many carloads a year. Send us a sample and name your most reasonable price. We buy every time your price justifies.

PROMPT REMITTANCE. Remittance sent by return mail for every shipment we receive.

Honesty and integrity during the many years in the honey business have won for us the good will and confidence of thousands.

OLD COMBS AND CAPPINGS. Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

WANTED, COMB HONEY. Comb and extracted Honey find ready sales here. Tell us what you have. We buy beeswax at high prices. Always glad to reply to inquiries.

WE SELL LEWIS BEEWARE. "Lewis," stands for the highest quality Beeware known. Safe and reliable, "Made like furniture." We are glad to fulfill your needs.

**DADANT'S FAM-
OUS FOUNDATION**

**ROOT'S SMOKERS
AND EXTRACTORS**

SEND FOR OUR 1918 BEE CATALOG

THE FRED W. MUTH CO.

PEARL & WALNUT STS.

CINCINNATI, OHIO

*Bee Supplies**Bee Supplies*

Service and Quality

Order your supplies early so as to have everything ready for the honey flow, and save money by taking advantage of the early-order cash discount. Send for our catalog; better still, send us a list of your supplies and we will be pleased to quote you.

C. H. W. WEBER & CO.

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SUPERIOR FOUNDATION

Does the Hen that Cackles

Loudest Lay the Largest Egg?

Any manufacturer of Weed Process Foundation that claims the "bees take to theirs first" either draws upon his own imagination, or else refers to specific instances which are the natural result of unequal conditions. Our exhaustive tests prove that the freshness of the foundation, the weight of the sheets, the nature of the honey flow, etc., are the determining factors. Exactly the same machinery, the same process, and the same materials are used by all manufacturers of Weed Process Foundation.

We specialize in the manufacture of foundation, and guarantee that our **SUPERIOR FOUNDATION** is unexcelled in quality by any other make. Let your own bees prove this to your entire satisfaction. If your dealer cannot supply you, order direct from us.

SUPERIOR HONEY CO., OGDEN, UTAH

HONEY MARKETS

Prices for honey are not materially lower than last month, but the market is in the condition of waiting. The demand is light, and the situation just now is largely dependent upon what export demand may or may not develop. The crop of 1918 is almost entirely out of the hands of the producers, so that the market now is of chief interest to the holders of large stocks. Below we print market quotations from various sources:

U. S. Government Market Reports.

HONEY ARRIVALS SINCE LAST REPORT.

Medina, O.—104,230 lbs. Idaho; 55,200 lbs. Colorado; 28,711 lbs. Alabama.

SHIPPING POINT INFORMATION.

Los Angeles, Calif.—Demand and movement moderate. Very little honey left in producers' hands. Carloads f. o. b. usual terms. Extracted: light amber alfalfa, 20½-21c per lb.; light amber sage, 23c per lb. Comb: Inyo County, fancy light amber \$6.25 per case; No. 1, \$6.00 per case. Beeswax: best 40c per lb.

San Francisco, Calif.—Supplies light. Extracted: demand and movement slow; comb, demand and movement moderate. Cash to producer at country loading points: extracted per lb., water white, 22-23c; sage white 20-22c; white alfalfa 20-20½c; light amber 19-20c; dark amber 16-17c. Comb: Nevada, 24-section cases, white \$6.50; light amber \$5.50; dark amber \$4.00-4.25. Beeswax: 36-37c per lb.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the price at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding two weeks. Prices represent current quotations.)

Kansas City.—No carlot arrivals. Supplies moderate. Quality and condition generally good. Sales to jobbers—comb: Missouri, No. 1 light \$8.00-8.50 per case; Colorado No. 1 light amber \$7.00-7.25 per case. Extracted: 25c per lb. Beeswax: 41c

Philadelphia.—Receipts very light; approximately 300 cases N. Y. comb, 16 10-gallon cases New York extracted, 2 barrels Florida arrived. Practically no movement, very few sales. Sales to manufacturers: extracted, New York, buckwheat 21c per lb., medium amber 26c per lb.

Cincinnati.—No fresh carlot arrivals, nearby receipts very light. Supplies liberal. Sales to jobbers, extracted: practically no demand, no sales reported. Comb: demand moderate, No. 1 white, heavy, \$7.10 per 24-section case. Beeswax: demand and movement moderate. Average yellow 38-40c

Chicago.—One California arrived. Demand and movement moderate. Sales to jobbers: extracted, Colorado, California, and Idaho, sage and alfalfa No. 1 white 22-24c per lb.; light amber 20-21c per lb. Comb: Colorado, No. 1, \$6.25-6.75 per case.

Denver.—No carlot arrivals. Supplies moderate. Demand and movement limited. Sales to jobbers: extracted, Colorado, white 22-25c per lb. Beeswax: cash to producer 38c per lb.

New York.—880 barrels, 23 tierces Porto Rico arrived. Receipts incomplete. Demand and movement moderate. Sales to jobbers: extracted, Porto Rico, \$2.30-2.50, mostly \$2.35-2.45 per gallon; New York buckwheat 20-23c; clover 24-25c per lb.; California, few sales light amber 25-27c; white 26-28c per lb. Beeswax: 107 bags, 13 cases, 11 croons arrived Porto Rico. Supplies liberal. Demand and movement slow. Light 43-44c, dark 40-42c per lb.

St. Louis.—Supplies light. Demand and movement very slow. Sales to jobbers: extracted, per lb., amber, in barrels, 21-22c, in cans 22-23c per lb.; comb: practically no supplies on market. No sales reported. Beeswax: prime 40c per lb.

St. Paul.—Supplies moderate. Demand and movement moderate. Sales direct to retailers: comb, Colorado and Minnesota, 24-section cases fancy, quality and condition good \$7.50-8.00; extracted, Minnesota, 60-lb. cans fancy white mostly 25c per lb.

Charles J. Brand,

Chief of Bureau of Markets.

Washington, Jan. 14, 1919.

General Quotations of Wholesalers.

[These firms are asked to quote the wholesale price they make to retailers. Accordingly their prices must be figured at least one profit higher than the price paid the producer. The large dealers do not quote prices in print that they will pay futrely to producers.]

NEW YORK.—We quote from several of the leading honey dealers of New York City, date of Jan. 16, as follows:

"Market quiet, awaiting export demand. Extracted honey, light amber, in cans, 26c per lb."

"Our honey market has been very quiet, but prices have been well maintained. Arrivals have been sufficient to take care of the trade's requirements. There is considerable inquiry for export, and the freight situation has become somewhat easier so that some actual business has been done for export. If this continues, it is fair to predict an advance in prices. Present quotations are \$2.40-\$2.45 per gallon for pure Porto Rico as well as Cuban honey."

LIVERPOOL.—Extracted honey value, spot, 40c per lb.; forward, 30c. The market is naturally in a distracted state in consequence of the altered conditions brought about by the armistice, and the relaxation of government regulations here and in America. Any small lots on the spot realized very fair prices, but consumers will only buy for absolute requirements and will not buy ahead except at nominal prices. It is therefore useless giving a record of what has been done in the past month, for it would serve no useful purpose. Spot lots of California honey latterly realized 47c, and other varieties on about the same parity. Sales of Australian honey for shipment from there in December have been made at 27c, and there are further sellers at 28c. This, of course, cannot arrive here until about March. The only bids forward for Chilian have been in the neighborhood of 18c a lb. There are plenty of offers of American honey for shipment which will now become available as the American Government has removed the embargo against export. So we look for honey prices to come down. Another month should clear the air. There seems to be no lack of supplies of honey from the world over, and, as we expect reasonable shipping facilities in the future, we think we must look for prices to be in the neighborhood of 19-26c. Beeswax value is 40-44c per lb. There is no appreciable difference in the price of this article. Stocks are plentiful and demand is slow. Here again we must look for a slow market, but there is not the same room for a decline as there is in honey, the price of this article having only risen 50 per cent during the war while honey has appreciated 500 per cent.

Liverpool, England, Dec. 24. Taylor & Co.

CHICAGO.—Receipts of comb honey are light, and supply on sale about exhausted. Receipts of extracted honey are liberal and prices lower on all grades. Comb honey, extra fancy, per case, \$8.00, per lb., 35c; fancy, per case \$7.50, per lb. 33c; No. 1, per case \$7.00, per lb. 30c; No. 2, per case \$6.00, per lb. 27c. Extracted honey, white, per lb., 23-25c; light amber, in cans 21-22c; amber, 18-20c. Clean average yellow beeswax, per lb., 40c.

R. A. Burnett & Co.

Chicago, Ill., Jan. 15.

KANSAS CITY.—There is very little honey on the market. Demand is fair. Comb honey, fancy, per case, \$7.00. Extracted honey, light amber, in cans, 23c; amber, 20c. Receipts of beeswax light.

C. C. Clemons Produce Co.

Kansas City, Mo., Jan. 17.

ST. LOUIS.—Our market is practically bare on comb honey. Extracted honey is in ample supply for the light demand. Extracted honey, white, per lb. 26c; light amber, in cans 24c; amber, 23-24c. Clean average yellow beeswax, per lb., 40c.

R. Hartman Produce Co.

St. Louis, Mo., Jan. 16.

DENVER.—Comb honey in good demand and supply about exhausted. Extracted honey in good supply. Local demand light. Comb honey, extra

fancy, per case, \$7.50. Extracted honey, white, per lb., 25c; light amber, in cans, 24c; amber, 22c. Beeswax, 38c.

The Colorado Honey Producers' Asso.
Denver, Col., Jan. 17.

ARIZONA.—There seems to be little market for honey at the present time. There are some stocks on hand but no sale. Price too high for ordinary trade.

L. M. Lossing.

Phoenix, Ariz., Jan. 14.

TEXAS.—Demand not so good as preceding months. No comb honey on this market. Extracted honey, light amber, in cans, 20-22½c. Clean average yellow beeswax, per lb., 36-38c.

J. A. Simmons.

Sabinal, Tex., Jan. 11.

TORONTO.—The market is weak thru lack of demand on account of the high prices. Quotations to the trade are unchanged, but there is a decided weakening of the primary markets.

Toronto, Can., Jan. 16.

Eby-Blain, Ltd.

MONTREAL.—Demand slow. There seems to be quite a good deal of honey among apiarists. Comb honey, extra fancy, per lb., 30c; fancy, 28c; No. 1, 27c; No. 2, 24c. Extracted honey, white, per lb., 23c; light amber, in cans 22c, in barrels 21½c; amber, in cans 18c, in barrels 17½c.

Gunn, Langlois & Co., Ltd.

Montreal, Can., Jan. 16.

SYRACUSE.—Conditions the same as last month, practically no comb honey to offer. Extracted honey very slow, with very light demand. We have all we need at present. White, per lb., 25c; light amber, in cans, 22c; amber, 20c.

Syracuse, N. Y., Jan. 15.

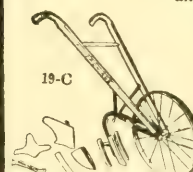
E. B. Ross.



The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.



IRON AGE
GARDEN TOOLS

Answer the "war gardener's" big question: How can I produce the most food in spare moments? How meet increased costs and war taxes?

IRON AGE Wheel Plow and Cultivator

Easy to push, fast, thorough, low in cost. Opens and covers furrow for seed and fertilizer. Cultivates wide or narrow rows. Turns soil and covers scratch foods in poultry yards. 30 other Iron Age Combinations. Send for free booklet today, and learn how to garden the modern, easy way.

Bateman M'f'g Co., Box 208 Grenloch, N. J.



64 BREEDS Most Profitable chickens, ducks, geese and turkeys. Choice, pure-bred, hardy northern-raised. Fowls, eggs, incubators at low prices. America's greatest poultry farm. 26 years in business. Valuable new 112 page Poultry Guide and Catalog free. Write today.

R. F. NEUBERT Co., Box 837 Mankato, Minn.

Special Offer Everbearing Strawberries | **PLANTS.... POSTPAID**

AMERICUS, PROGRESSIVE, SUPERB, FRANCIS, Peerless

Some of each while in supply. When sold out of one or more we will send the others. Don't delay.

100 Plants, \$1.75; 200 Plants, \$3.40; 300 for \$5.00

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C. N. FIANSBURGH & SON JACKSON, MICHIGAN

BE CAREFUL In selecting your Foundation stock of any Breed

Rufus Red Belgian Hares

Only Pedigreed Registered Stock. Prices Reasonable

JOSEPH BLANK

428 Highland Ave.

Mount Vernon, New York



WHERE CYPRESS HIVES ARE MADE

Mr. Beekeeper:—Let me send you my Cypress Catalog, explaining the merits of my Cypress goods and give me a trial order, and be a pleased customer. Prices are right and the hives are everlasting in any climate. A large stock of everything used in beekeeping. I am fully ready for orders and will appreciate them.

J. J. WILDER



WAYCROSS, GEORGIA

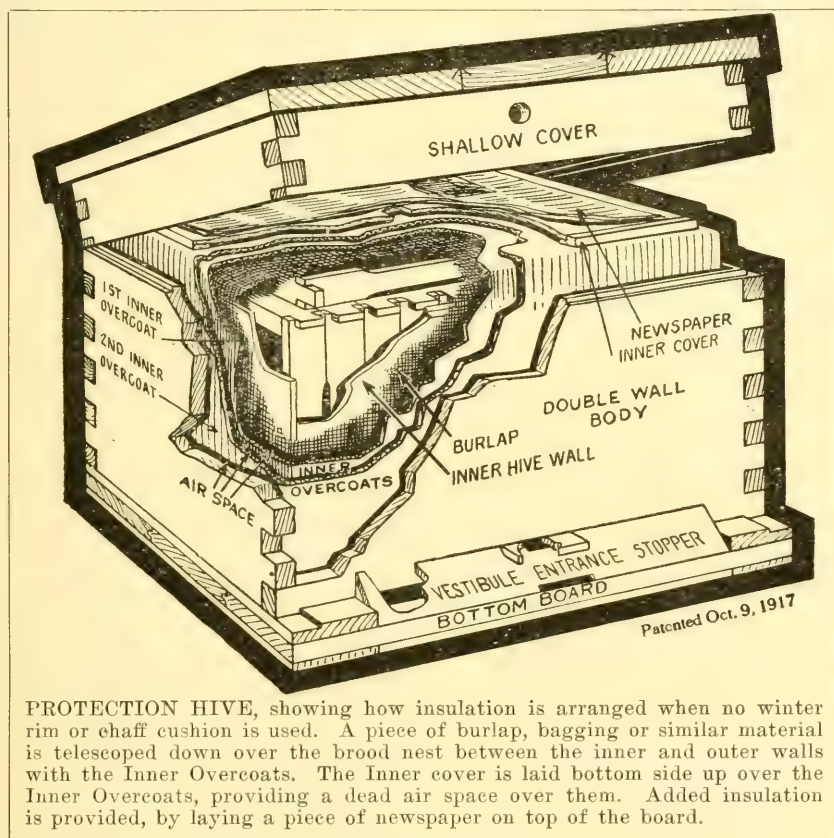
From Central NEW YORK

Shipments of Bee Supplies can be made promptly on time, and freight will be saved thereby. Beekeepers, as the years go by, are getting in the habit of ordering supplies earlier. This fall we had an exceptional increase of early orders. A few years ago, most, if not all, waited till May and June before ordering, with the result they were not prepared for the season. One of our largest beekeepers of the State made a practice of getting ready during the fall and winter and secured large returns during the season following. In fact, he cleaned up after the year's crop—all separators, supers, and everything piled away nicely. Now he is gone, but left everything in good shape. If every one would follow his example, what a large yield of honey would be secured. We are glad to say quite a large number do. Why not, if you have not already done so, estimate your requirements for next season? One of our beekeepers that secured a year ago \$10,000.00 worth of honey, this year secured \$14,000.00—a fortune. Why not get in line and get your share?

F. A. SALISBURY
1631 WEST GENESEE STREET
SYRACUSE, NEW YORK

Winter Problem Solved by the Hive with an Inner Overcoat.

For your information and to be convinced of the efficiency of this hive, send for a sample. For a limited time one sample hive will be sent set up and equipped as per this illustration at the special price of \$5.00.



PROTECTION HIVE, showing how insulation is arranged when no winter rim or chaff cushion is used. A piece of burlap, bagging or similar material is telescoped down over the brood nest between the inner and outer walls with the Inner Overcoats. The Inner cover is laid bottom side up over the Inner Overcoats, providing a dead air space over them. Added insulation is provided, by laying a piece of newspaper on top of the board.

Our new illustrated catalog for the season of 1919 and a special circular of the Woodman Protection Hive, showing 10 large illustrations will be sent upon request. Send us a list of your requirements and let us figure with you on your wants for the coming season.

A. G. WOODMAN CO., Grand Rapids, Mich., U. S. A.

Anticipate Your 1919 Bee Requirements Now

Help Us Co-operate with the Government by Ordering Your Bee-Supplies for Next Season Now. . .

Transportation conditions may not permit of prompt shipment later on---Now, of all times, the beekeeper "SHOULD NOT PUT OFF UNTIL TOMORROW WHAT HE CAN DO TODAY." You owe it to your country and to yourself to prepare at once for the gathering of the 1919 crop.

Have You Enough Hives?
Have You Enough Supers?
Have You Enough Frames?
Have You Enough Sections?

And have you enough of the rest of the things you will need?

The Lewis Factory is now operating night and day to take care of the season's demands. . . . Help us while we are helping you---Place your orders now, so manufacturers and dealers can help their country, your country, you, and themselves by preparing now for your needs.

The New Lewis Catalog will be out This Month
G. B. Lewis Co. . . . Mfrs. Beeware
Watertown, Wisconsin

GLEANINGS IN BEE CULTURE

FEBRUARY, 1919

EDITORIAL

FROM TIME TO TIME, there have come suggestions to Gleanings that the beekeepers of America



**If We Can
Do It Well.**

might well set about raising a fund to relieve the sufferings and losses of the beekeepers in the devastated war regions of Europe. These suggestions have come of kind hearts and broad sympathies. Very many beekeepers in America doubtless would be glad to contribute, for as much as has already been given by America to relieve the awful suffering of Europe, more needs to be given, and many of our beekeeping brothers across the Atlantic are sorely in need of help.

May we observe that if a beekeepers' fund is to be raised in America for the relief of beekeeping sufferers in Europe, it should be a generous sum. The beekeepers who have met with war disaster in Belgium, France, and the Balkans must number many thousands. An American beekeepers' war-relief fund should accordingly foot up to many thousands, if any substantial relief is to be afforded. To accomplish this requires organization and large effort. The appeal will have to be wide and thoro. A considerable executive force will need to be organized in America. On the other side of the Atlantic a trustworthy distributing agency must be found or provided. It is a big work and needs to be done quickly. Yet, so far as any suggestion has reached us, it has consisted only of suggestion and enthusiastic approval of the idea, without offering any practical plan of procedure on which the big work may be got under way. Merely approving and asking what is to be done about it, doesn't get anything done nor does it give evidence of comprehending the size of the job.

Gleanings does approve of any practical plan to aid our brother beekeepers in Europe. But, if it is to be done, it should be well done, for otherwise it would prove a discredit to us as American beekeepers. Therefore we suggest that the National Beekeepers' Association consider the whole subject at the annual meeting to be held within a few days. If, after considering all factors in the case and all other relief agencies now at work, it is thought best to make a distinct nation-wide appeal to the beekeepers to give to this beekeepers' cause, it

seems to us the appeal could come from no other source so appropriately as from the National organization.

From a letter just received from Dr. E. F. Phillips of Washington, we learn that Mr. Graham-Burt, Mission Anglo-Americaine de la Societe des Amis, 53 Rue de Rivoli, Paris, France, is interested in this work. We suggested to the officers of the National Beekeepers' Association to get in touch with Mr. Graham-Burt in advance of the meeting to be held Feb. 18 to 20 in Chicago, learn what aid is needed by our suffering beekeeper brothers "over there," how it can best be given, and how it can be most economically and surely distributed.

We are for helping our beekeeper brothers in Europe and doing it as a body of beekeeping brothers in America—if it can best be done this way and can be well and creditably done. Otherwise, we are not. Our sincere hope is that it can be creditably done.



THE ARTICLES on bees and fire blight by Prof. Troop and John H. Lovell printed in



**Combat This
Hurtful
Fallacy.**

this and the January issues should be carefully read by beekeepers in

order that the facts and reasoning submitted in defense of the bees may be clearly kept in mind. Altho the bees are among the best and most valuable friends of the fruit-growers, yet many of them don't know it—in fact, are hostile to bees and beekeepers. Beekeepers should be able to dispel this hostility.



THE CALIFORNIA Honey Producers' Co-operative Exchange, with headquarters at



**The California
Honey
Exchange.**

Los Angeles, of which mention has already been made in Gleanings, now has 700 members

comprising an aggregate of over 100,000 colonies. Each member pays in at the rate of 50 cents per colony, a part of which is turned in as actual cash and the balance in the form of a note to be liquidated at a future time. Every member is pledged to sell his honey thru the Exchange, thus in-

sureing a uniform and a fair price; he is also entitled to purchase his supplies at a reduced rate made to members only, and of any make or standard that he may select. The policy of the Exchange is to treat all makers of supplies with an equal consideration—price and quality considered.

In brief, the California Honey Producers' Co-operative Exchange is a purely business organization designed to get for its members the very best possible prices for their honey and the lowest figures (quality considered) for their supplies. In consideration of the low price the members are expected to pay cash.

The various California fruit exchanges have been a great success, and there is no reason why the new honey exchange should not be equally so under the advice and direction of General Manager Justice, who has had a large experience in a business way before he became manager of the present organization.

There is still another co-operative organization among beekeepers, known as the Southern California Beekeepers' Association, also with headquarters at Los Angeles, with E. B. Shaffner as president. While its name would indicate that it is confined to the southern part of the State, it probably has a wider scope. Both organizations, we are informed, have the same objects in view—better prices for the honey sold and lower prices for beekeepers' supplies.



DURING THE past year we have had a number of complaints against some of our



**Complaints
Against
Certain
Advertisers.**

advertisers because of their failure to deliver bees or queens or both. In most cases the

matters at issue

have been adjusted. Two of our advertisers, however, were unable to return either the money or the bees in all cases. We have had numerous complaints against one of these bee dealers for failure to deliver bees or queens, and especially his failure to answer letters. We took the matter up with him last summer, and told him there was no excuse for not answering a letter, and asked why he did not fill his orders. He replied by saying that he was literally swamped with orders, was oversold on bees, and with the money he had received he had bought more bees and queens. He admitted he was behind in his correspondence, but was working overtime to catch up. In the meantime some of his customers canceled their orders, and asked for a return of their money. This he was unable to do, as he had spent it for bees, but said he would furnish bees next spring or this fall.

Another of our advertisers was likewise swamped with orders, had bought more bees with the money that had been sent him, and, as the season was too far advanced, his cus-

tomers either canceled their orders, demanding return of their money, or refused to accept the shipment of bees. As the money was tied up in his business this man was unable to return it; but he wrote us that he would take care of all his customers who did not receive their stock, and that he would not receive any new orders until all the old ones had been filled. He said he regretted very much that he was unable to return the money or take care of his customers promptly last season. Like the other one, he says that not one of his customers will lose a penny, if they will give him a chance to make good next spring.

Both men filled large numbers of orders; and one of them in particular made some large shipments of bees; but owing to the delays on the part of the express companies, on account of war conditions, a number of shipments covering several hundred pounds of bees went thru in very bad order. In some cases all the bees were dead on arrival. The failure of the express companies, said this man, put him in bad shape to fill his orders. In a large number of cases he had to make duplicate shipments, and sometimes even these arrived dead. This, while showing good faith on his part, only left him deeper in the hole.

Advice is cheap; but it is very plain that no queen-breeder nor bee-breeder should accept orders beyond his capacity to fill. He should in all cases make his prices high enough to cover a percentage for replacement. When the whole South could not fill half its orders for bees there was no reason why any one should make his prices too low.

The late W. Z. Hutchinson, when he was raising queens extensively some 30 years ago, said he had made it a rule never to cash a postal order nor a check until the queens had been sent, and a reasonable time had elapsed so that he could determine whether it would be necessary to make a replacement. Said he, "I do not believe the money is mine until I am absolutely sure that my customer has received his money's worth." That is a pretty good rule.

Incidentally we might mention that there are others against whom complaints have been made, and, so far as we know, adjustments have been made or are pending in every case.

As in the past so we will in the future refuse to accept advertising from those dealers in bees and queens who neglectfully or fraudulently refuse to carry on a strictly honest business. We shall also require all new advertisers to give us a report of the number of colonies they have, whether they have bee disease, and whether there are black bees in their vicinity; and, if so, how near. New advertisers will also be required to give the names of several bankers or other reliable business men in their vicinity who will certify to the fact that the parties in question are not only honest, but are capable of doing business in a business way and will do so.

CALIFORNIA, the greatest bee and honey State in the Union, with prospects of further developments beyond that of any other commonwealth, is where I shall be making my home for the next two months. The beautiful climate, the scenery that is the equal of any in the world, and last, but not least, the wonderful beekeeping possibilities, all hold out an alluring hand of welcome to an Ohio editor who, they say, is needing rest and a change.

Some Vast Bee Ranges.

When I first came here I intended to stay only a month; but when I heard of the vast bee-ranges up in the mountains where there are no bees, and of other ranges from which carloads of honey are coming, I felt that I must stay long enough to investigate the first-mentioned ranges. It should be stated in all fairness that many and most of them are out of reach, for the reason that there are no roads to them as yet. These ranges of sage and wild buckwheat will never be good for anything but bees; and as soon as they are made available by roads there will be an enormous increase in the production of honey. There is too, so I am told, territory now available that is not occupied.

California's Great Beekeeping Possibilities.

Right here let me say that there is terri-

NOTES FROM CALIFORNIA

Great Bee Ranges Still Unoccupied. Big Attendance at 'Beekeepers' Courses. Farmerettes in the Apiary

By E. R. Root

here long enough to find where there is room for everybody who would like to come out here for his health and the fun of keeping bees. But it is only fair to say that a tenderfoot may get only expensive experience (of the kind that Josh Billings tells about) without even the fun or funds, for it is not all gold out here. But so great are the possibilities for bees that the Governments of the United States and of the State of California jointly arranged last November and December for a series of short courses in beekeeping in the State, taking in a series of localities. In spite of the influenza, which was bad, the courses, with one exception, were well attended. Beekeepers everywhere have declared that they were of great value; and so strong has been the request that they be repeated this coming winter that they will undoubtedly be given again, beginning at Riverside, which, unfortunately, had a rigid influenza ban when the courses were held there this year.

Successful Beekeepers' Study Courses.

The remarkable thing is that the beekeepers—not amateurs but pioneers—sat thru the long sessions night and day for a

tory here that is overstocked. There is not a particle of need of this, and there should be a law to stop the encroachments of poachers. I shall stay

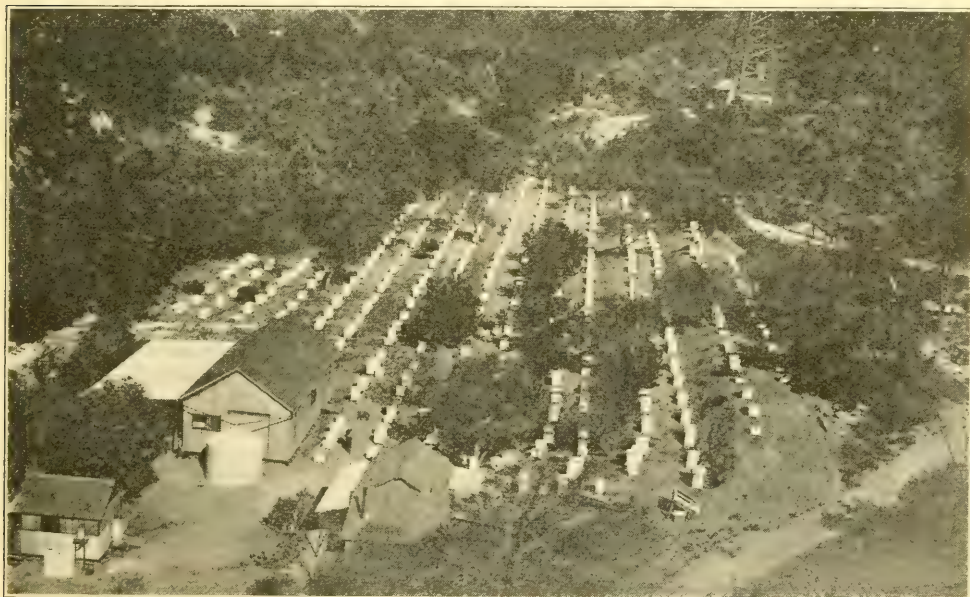


Fig. 1.—The celebrated Mendleson apiary at Piru, Calif. This is acknowledged to be the prettiest and most orderly kept apiary in all California. Its owner is very methodical and orderly in his habits. Everything must be neat and clean. This is one other reason why he prefers farmerette beekeepers.



Fig. 2.—This is not a gang of highway robbers but a meeting of beekeepers wearing "flu" masks. At Visalia, Calif., where there was held a short course in beekeeping, the influenza was so bad that masks were required to be worn indoors where there was any crowd. In one respect this was one of the most remarkable gatherings of beekeepers ever held in the history of beekeeping. The attendance at this meeting would have been much larger had it not been for the "flu."

whole week at each of the places, giving the closest of attention. Dr. Phillips and his staff of assistants gave particular consideration to bee diseases—how to distinguish one brood disease from another; the potency of education rather than police powers to hold them in control; the need of strong colonies; what might be done in se-

curing crops of orange honey at the approach of the flow; the value of protection in a climate where during nights and mornings in the winter the temperature drops almost and sometimes quite to the freezing-point, and then runs up to 70 degrees during the middle hours of the day.

On this last point, M. H. Mendleson, a



Fig. 3.—Farmerette beekeepers who worked for M. H. Mendleson of Ventura, Calif., last season, rearing queens and extracting. Mr. Mendleson—who ought to know because he is a bachelor—says this kind of help is the best he ever had. They are better for queen work and cleaner in uncapping and extracting than any men that he ever had. Their dress is sane and safe.

pioneer beekeeper of the State, said that he had proved to his own satisfaction that it paid, and paid well, to give bees protection. It saves brood and saves stores, which, at 25 cents per pound, is no small item.

A Big Beekeeper and His Work.

Speaking of Mendleson, he is one of the beekeepers whom I helped in his extracting in 1901, and who proved to me that the big extractors should be run with an engine and not by hand power. After he had "worked" me all day in turning the crank he gave the boys the tip to flood me with combs—and they did.

Let me now introduce you to his farmerette beekeepers, who, he says, are better than boys or men for all beework except taking combs from the hives and lifting and toting supers to the extracting-house. These farmerettes include one dressmaker, one schoolteacher, a nurse, and the mother of a boy in France. The suit without a blouse, says one of the "ettes," is a Peggy Jane. The other suits with a blouse are one-piece overalls gathered at the shoe-tops. Farmerettes are so common in the West that they do not attract attention. The girls go in these suits from yard to yard.

Mr. Mendleson has some 800 colonies, and one year produced over 100 tons of honey.



Fig. 4.—The beekeepers who took the beekeeping short course at San Diego, Cal., for the week of Nov. 23 to 30. At the close of one of the sessions they came out in front of the building where the picture was taken.

In addition to producing honey he is now raising queens; and beekeepers out here tell me that the farmerette brand are of the very best—both the kind that the beekeeper wants to cook his meals and the kind that he puts in his hives. Of the former, Mendleson says he positively has none to spare. He may need more, as some have swarmed out already.



Fig. 5.—This picture shows the staff of speakers (excepting Prof. Coleman of the University of California) at the short beekeeping courses given at various places in California. Beginning on the left, the speakers are Geo. S. Demuth and Dr. E. F. Phillips of the Bureau of Entomology; Frank C. Pellett of the American Bee Journal; Jay Smith, special Government field agent in beekeeping for California; E. R. Root of this journal; and M. H. Mendleson of Ventura, Calif. Just as the camera was clicking Jay Smith made a remark causing a smile that wouldn't come off from the face of Mr. Root. The Jay, as he was called, had a habit of bubbling over now and then.

ABOUT a score of years ago bees were accused of being a serious factor in the spread of fire blight. Altho this charge was based on

wholly insufficient observation and experiment, it was generally accepted, doubtless, as Merrill observes, because bees are so abundant in orchards at blooming time. By tending to check the growth of bee culture this belief has been injurious to both beekeepers and fruit-growers. But during the last half-dozen years evidence has rapidly accumulated, which shows that blight is spread by other agencies and fully exonerates the honeybee.

The Nature of Fire Blight.

Fire blight is a bacterial disease, which attacks the twigs and ends of the branches of apple and pear trees and blights the leaves and flowers. If not checked it may extend to the entire branch, or may finally even kill the tree. Usually the infections die out in a few weeks; but, here and there, at the point where the dead limb joins the living wood, a few survive the winter. In the spring they resume their activity and exude a gummy substance filled with germs. They are called "hold-over cankers." From these cankers the germs are widely disseminated thru the orchard, and a new outbreak of blight follows. The question at once arises, what agencies act as carriers of the germs. It is certain that the honeybee is not one of them, for it restricts its visits entirely to the bloom of the trees. There is not a single instance on record of a bee visiting the exuding cankers. Nor is it claimed that they do. During three years' close observation at blooming time W. A. Ruth did not observe a single case of an insect visiting the exuding cankers. It has been suggested that ants, which roam everywhere, may carry the blight bacteria to plant lice feeding on the leaves; but this supposition does not appear to be based on direct observation. It is probable that the wind, not insects, as will be shown later, is the chief agent in their distribution.

When Outbreaks Occur.

There may be repeated outbreaks of fire blight in April, May, June, July, and August; but the chief months for blight are May, June, and July. Thus this disease is by no means confined to the blooming time of the apple and pear. Clearly the appearance of fire blight, when there is no bloom on the trees, can not be attributed to the honeybee, for it can prove an alibi; it is busy elsewhere. Yet these outbreaks are as severe as, or more so than those which occur in blooming time.

Leaf Hoppers Important Carriers.

In a paper on the control of fire blight

THE BEES ARE NOT GUILTY

Discovery of the True Agencies of Spreading Fire Blight and the Exoneration of the Honeybee

By John H. Lovell

hoppers carried the infection from blighted leaves to perfectly healthy shoots of the wild crab apple. After five years' experience Burrill believes that in the orchards and nurseries of Wisconsin leaf hoppers (*Empoasca mali*) are the most important carriers of blight during July and August.

Plant Lice Chief Distributors.

In Kansas, according to J. H. Merrill, (Bee Inspector's Report, Iowa, 1916, page 33) plant lice, which are the most common and widespread sucking insects in Kansas orchards, have been found to be the chief distributors of blight bacteria. Aphids, which had been permitted to crawl thru pure cultures of fire blight, were then placed on terminal twigs and enclosed in cheesecloth to exclude all other insects. These twigs blighted and were the only ones that did. Furthermore, it has been observed that in seasons during which plant lice are most abundant, fire blight is also most prevalent. In 1913 in Kansas orchards they were very common and so was fire blight; but in orchards in which they were controlled there was little blight. In 1914 there were few aphids and little blight, and this reciprocal relation was again noticeable in 1915 and 1916. Merrill says that the amount of blight can be decreased by controlling the aphids. Stewart also observed that in apple nurseries fire-blight epidemics follow rapidly in the wake of aphid epidemics.

Sucking Insects Important Distributors.

In New York orchards in July, according to Stewart, the tarnished plant bug and several other sucking insects are important distributors of blight. Finally D. H. Jones has added to the list a beetle of the genus *Scolytus*, and on further observation many other insect carriers will doubtless be discovered. There is no lack of puncturing and biting insects in immense numbers, which, it is certain, are active in spreading fire blight.

Bees Never Puncture Leaves.

It will be noticed that all the insects mentioned in the two preceding paragraphs have mouth-parts, which can puncture or bite thru the epidermis of the leaf. In this way the germs are placed in the tender tissues, multiply rapidly and produce infection. "Insects," says Merrill, "with sucking mouth-parts are admirably suited to this purpose." Stewart and Leonard state that except for blossom blight the bacteria can not gain an entrance in the host tissue and produce infection except thru a wound or the punctures made by insects. Honey-

by A. C. Burrill, published in Phytopathology, Dec., 1915, there was described a series of experiments, which shows that aphids, or plant lice, and leaf

bees never puncture the leaves; indeed, under normal conditions they never visit them; nor do they puncture the flowers of the apple or pear, for the nectar is easily accessible on a flat disc. If, however, blight is chiefly distributed by the wind, the pricking in of the germs, altho a great advantage, is not an actual necessity.

An Alibi for Bees.

It is clear that all infection of the leaves and twigs must be due to other agencies than the honeybee, since the latter confines its visit strictly to the flowers. Furthermore, since bees visit the trees only during blooming time, it is only during about two weeks out of 14 or 15 that it can be accused of being a carrier of blossom blight. Let us now inquire if honeybees are responsible for the spread of blossom blight. As they do not visit the foliage they can not be the agency, which, in the first place, brings the blight to the bloom. In Kansas orchards, Merrill states, this is done by plant lice, which in large numbers enter the apple buds and suck their juices before they open, at the same time inoculating them with blight bacteria. Thus the flowers blight in the bud before bees begin their visits. Once the bloom is blighted it is no longer attractive to honeybees; for, if we remove the petals of a healthy pear blossom, bees will at once cease to visit it, altho they will continue to visit other flowers near by. Twenty-three pear blossoms received 24 visits from honeybees in half an hour; the writer then removed all the petals and in the half hour following there was not a single visit, altho the denuded blossoms contained nectar and the bees often visited other flowers near them. Thus bees might fly indefinitely between the uncontaminated blossoms without disseminating the blight. But it must be remembered that the bloom is visited by many insects besides bees, especially by flies and beetles which do not exhibit flower fidelity. As they alight on the leaves both in search of food and by chance, and will freely visit the blighted blossoms, they can not fail to spread the blight among the flowers. Incidentally it may be remarked that not all blighted pear blossoms are the result of fire blight. In the Hudson Valley, according to Dr. E. Porter Felt, the injury is caused by pear thrips. These little insects, which are about 1-20 of an inch long, appear on the trees as the buds start and seek shelter in the expanding flower buds, blasting the bloom, which presents a brown seared appearance.

Summary of Above Observations.

A brief summary of the above statements is as follows:

1. Fire blight appears both before and after pear and apple trees bloom, and in nursery plantations which have never bloomed. With such outbreaks the honeybee has no connection. 2. It has been shown experimentally that fire blight is spread by hosts of sucking and biting insects, such as plant lice, leaf hoppers, the

tarnished plant bug, and probably many flies and beetles which puncture or feed on leaves and flowers. 3. Since honeybees restrict their visits to flowers they do not carry blight from the foliage to the bloom. This is done in many instances by plant lice, which creep in and infest the buds before they expand; and also doubtless by many flies and beetles which fly freely back and forth between the leaves and the bloom. Honeybees will not visit blighted inconspicuous bloom, but flies will often do so. While honeybees may occasionally carry the germs, they are of so little importance compared with other distributors that their absence from orchards would probably not affect the prevalence of blight.

Pear Blight Wind Borne.

At this point the defense of the honeybee against the accusation of carrying fire blight rested up to Nov. 1, 1918. On this date there appeared in Science a paper by F. L. Stevens, W. A. Ruth, and C. S. Spooner of the University of Illinois, entitled "Pear Blight Wind Borne," which advanced new and revolutionary evidence in favor of bees. A brief abstract of this paper given largely in the words of the authors is as follows: Twelve-mesh wire-screen cylinders, 15 cm. in diameter and 30 cm. long were constructed to enclose parts of single branches. Some of the cylinders were slipped into closely fitting sleeves of fine bolting cloth. The ends of both kinds of cylinders were covered with canvas extending past the wire far enough to permit secure tying. The exposed wire of the first type of cylinder was painted with a mixture of tanglefoot and benzine. No insects were found in any of the cylinders except one which was accidentally permitted to dry, and in which two insects were found, but the shoot did not blight. The purpose of the following experiments was to discover whether infection was as common in the cylinders as in the open. Ten cylinders enclosed flowering wood. Flowers in two of the cages blighted. Forty cylinders, 20 of the bolting cloth and 20 of the tanglefoot type, enclosed terminal growth. Thirty per cent blighted, which was practically the same proportion as prevailed among the unenclosed terminal shoots, as was shown by a count of a thousand terminal shoots on these and adjacent trees of the same variety and age. Since insects did not obtain access to the shoots the blight bacteria must have been carried by the wind; and "insects were not even of primary importance as carriers." This conclusion was further supported by two facts: (1) there was a lack of insects in the orchard in sufficient numbers to account for the large amount of twig blight—aphids and leaf hoppers were entirely absent during the period of infection; (2) insects were entirely absent from the exuding cankers, where they might receive their initial contamination. During three years of close observation during blooming time not a single insect was seen to visit the cankers.



ANNE LESTER AND DADDY LOWE, BEEKEEPERS



By Grace Allen—Chapter I

THE Second Officers' Training Camp had bestowed its commissions, and the young men were leaving for home. Robert Lester, wearing his new captain's bars, and young Jack Lowe, proud and enthusiastic in his first lieutenant's uniform, sat together on the northbound train and talked over their plans. A fine friendship had sprung up between the two, and now Jack was urging the other to drop off at Springville to spend a day or two with him at the farm, before going on to his own city home.

"Can't do it, Jack," Robert replied, thanking him. "I'm not going to do a thing till Anne gets settled. You see when a girl hasn't anybody but her brother, and he's likely to get orders for France any day—"

"Of course," Jack agreed.

"I don't know what she'll do," Robert continued. "She's not the kind to do nothing. Mother died five years ago, when Anne was fifteen, but she kept the old servant and stepped right into being housekeeper for Father and me. Then when Father died, nearly two years ago, we just kept right on, we two, the same way, with old Maggie to do the work and Anne to boss things and keep them running smooth—and by Jove, she does make a home homey. But now— Well, she's talked about getting a job. But you know you couldn't imagine Anne in a regular job. Women do such things, of course, and Anne's as smart as a whip—but she's not that kind, somehow. She's different."

"Of course," Jack said again, vaguely. Then presently, "What does your sister seem to care most for, Bob?"

"Outdoors and books—says she wishes her family'd been farmers instead of bankers."

"Outdoors and books? Well, if that's not my Daddy!" Then suddenly Jack turned, with his face shining. "I've got it, Bob! Send her to live with my folks while we're both gone!"

Bob smiled. "Anne's not the kind you 'send,' Jack."

"Well, I bet she and Dad'd be regular pals. And she'd just love my Mother. And Mother'd love her, too. You see?"—looking very young and embarrassed — "I'm all they've got, and it's going to be hard for them, too."

"But they're complete strangers, Jack," Bob protested.

"Well, they wouldn't be long. Nobody is, with Dad. I tell you, Bob, it's an inspiration! You can see, yourself, how fine it would be for my folks; and as for your sister, there she'd be, right on a farm, with plenty of outdoors and books. Books and Dad and long winter evenings! Bob,

you don't know my Daddy! He's a bee-keeper!"

"Would that make Anne especially keen about him?" inquired Captain Bob politely.

"Would it? Well, I guess yes! 'Outdoors and books'! Sounds as if Dad had said it. If there's anything he likes better than a book, it's another book. Philosophy, religion, poetry, science, and of course everything about bees. Then in the spring and summer when the bees themselves get to humming round in the orchard and clover—well, I've got a hunch he and Miss Anne are a pair. That is, if she's not scary. Bees do sting—even Dad's sometimes."

"Hm! You said I didn't know your father," Bob remarked scornfully; "Well, you don't know my sister. Anne's not the scary kind. But, look here, Jack, she won't want to go live with strangers."

The young lieutenant solemnly rose. "Captain Robert Lester," he began, saluting pompously, "I have invited you to visit me at my home. You're crazy to come, because you're awfully fond of me, naturally. But you won't leave your sister. So I hereby formally invite your sister, too. So does Mother. Sure she does. She always does. All my friends and their families have a standing invitation from Mother. You've only to tell your sister that if you stay there in town, you'll be so eternally lionized, with those two new silver bars of yours, that you'll never get a minute alone with her; while out there on that farm, you two can take endless tramps together, uninterrupted, and plan things all out—because your dear friend promised you so. And your dear friend is a gentleman and—get it right, Bob—and an officer."

"Jack, you're too modest. But you're a brick at that, and I'm much obliged. I'll just try that on Anne now, sure enough. But suppose she should decline? Maybe she wouldn't care for the country in winter."

"You may know reveille from taps, Cap'n Bob, but you're none too smart at that. Folks that love outdoors love it for itself, not for its trimmings—it doesn't have to be appleblossomtime forever. Why, my old Daddy can discover colors all over a winter landscape, when the earth's as bare and brown as dirty khaki!"

"So can Anne," grinned Captain Bob. "We'll likely come."

"And if Dad doesn't do the rest, my name's not Jack Lowe."

About ten days later Dad did the rest—or he and Anne together did it, to the great delight of the two young men. They were standing, the four of them, at the far end of the woods lot; the sun had slipped down behind the hill, and the sky behind the bare maple was aflame. For a minute they were

so still they heard a woodpecker tapping on an old oak near by.

"It's beautiful here," Anne said softly at last, "beautiful. I hate cities. And I've loved our week here. Mr. Lowe, if brother Jack hadn't gone and got captainized, I'd be wheeling him to buy your farm for me, this minute."

"I'm afraid I wouldn't be selling, tho," the old man replied. "I love it myself. But Miss Anne, what makes you go back to the city? We wish you'd stay here, Mother and I. We talked about it last night. You see—with our boy—and your brother—both gone—we'd be so alone here, and you'd be so alone there—and — —"

"Do you mean for us to be alone all together, here—while they're away?" Anne asked slowly.

"Yes," he said, "that's what I mean."

"It would be lovely," she said softly.

"I'd read you Marcus Aurelius and Virgil and Isaiah," he tempted.

The girl fairly crowed. "I'd read you Whitman and Rupert Brooke and Tagore," she retaliated.

"And Maeterlinck," insisted the man.

"And Henley," gloated the girl.

"Then you'll come?"

She turned to her brother. "It's for you to decide, Anne," he smiled.

"I have already decided," she answered, and laid her hand in Daddy Lowe's.

"Poor misguided young thing," murmured Jack teasingly, "she'll grow up to be a beekeeper, sure!"

Within a month both young men had gone, and Anne had settled down on the Lowe farm for an indefinite stay with the two old people. "It's hard to say which I love more," she wrote her brother, "the sweet-faced, frail little mother, with her spirited sense of fun, or this strong, fine old man, who lives so simply and thinks such big thoughts. But I do seem to chum more with him—he takes in all outdoors, somehow, and gives me a jolly feeling of downright farmery, and we have such grand reading sprees nights and stormy days, with the mother knitting or sewing. Anyway nobody could feel exactly chummy with Mrs. Lowe; it would seem too familiar, like trying to chum with the Madonna. I do believe she is really a saint, a saint with a sense of humor."

Meantime Mother Lowe was writing Jack: "Your friend's sister brings a very sweet young breath into our old lives, and she is lovable indeed. Her devotion to your father makes me most happy, but—will she love him later, when the bees begin to sting?"

Being keenly alive, especially to things out of doors, Anne was interested in every phase of the farm. But from the first, the quiet beeyard attracted her. One cold day she walked over to it with Daddy Lowe. The sky was that dead gray that drops great snows on the earth. But the sun was just breaking thru, and everything was white

and glistening. The trees hung their heavy branches low, while row on row, the bee-hives were nearly hidden beneath the heaps of drifted snow.

"It's beautiful, but won't they all smother, with the snow over their doors that way?" Anne asked anxiously.

"The snow is so porous they get all the air they need," he answered, "and it helps to keep them warm."

Then he showed her some big packing cases. "There are four hives in each of these, for the winter," he explained, "with chaff over them and under them and all around. Most of my bees have chaff only on top, but —"

"Well, I should think they'd need it all around, thick and warm," Anne interrupted, pulling her furry cap lower. "I don't see how they can live thru winter weather anyhow. They don't indulge in furs or blankets—and they're so little."

Then he told her about the cluster, "In winter," he said, "the bees leave the sides and bottoms and corners of the hive and gather together in a ball, some of them in the cells of the comb and the rest all bunched up together so that the whole thing's like a ball, a live ball. There they take exercises, as it were, to help keep warm. It always gives me a queer feeling to come and stand near them this way, and try to imagine what's going on inside there. There there are, thousands of tiny bits of life, not sleeping, yet all grouped together in that wonderful and mysterious cluster. The warm inner ones gradually come out while the chilled ones on the outside slip slowly in towards the warm center. And somewhere at the heart of each cluster is the queen."

"The queen?" queried Anne, big-eyed, "the queen?"

"The mother, more correctly. But she's called queen, and she's a beauty. Long and slim and really royal looking."

"Divinely tall and most divinely fair?" quoted Anne interrogatively.

"Exactly. And likewise 'imperially slim.' Miss Anne, you'll love them. Wait till spring when the apples bloom, and we'll open the hives. Then you shall see them all, and learn their ways and a little of their mystery. But come, you're getting chilled. Let's go in. I've got some supers to put together."

"And I'm to help?—whatever supers may be?"

"Well, how much of a carpenter are you?"

Anne meditated. "I've pulled tacks," she ventured, "I've driven nails to hold pictures and stewpans. And I don't stick my front finger straight out on the handle of the hammer, either. Can any man require greater skill than this, even for supers?"



(To Be Continued.)

G. A.



SOME REMARKABLE RESULTS

Accomplished by Members of the Oklahoma Boys and Girls' Bee Club

To increase the beekeeping industry of the State and to train up young beekeepers is the object of the Oklahoma Boys and Girls' Bee Club, in which 97 members have just completed their first year's work. This club is organized and directed by C. F. Stiles, Field Agent in Beekeeping of the U. S. Department of Agriculture, and the Oklahoma Agricultural and Mechanical College, under the supervision of John E. Swaim, State Boys' Club Agent.

The rules for the bee club were made out with the idea of developing good, practical beekeepers. Any boy or girl between the ages of 10 and 18 years, inclusive, may join, if he will agree to follow instructions and keep a yearly record of his work. Members are required to have or purchase at least one colony of Italian bees in a modern 10-frame hive. If Italian bees can not be purchased, any kind may be purchased, but an Italian queen must be introduced early in the season. The 10-frame hive is specified, because it has been found by experience to be best adapted to Oklahoma conditions. Timely instructions are prepared and sent to the members about every two months. These written instructions are supplemented by personal visits by Mr. Stiles. Practically all the hives are run for chunk honey, altho a few of the boys and girls use an extractor. The use of the

section super is discouraged, as the average season is not adapted to the production of fancy section honey.

Each club member is required to keep a complete expense-and-production record. It includes such items as number and value of



One of the Oklahoma girls busy in her study of bees.

colonies at beginning and end of season, number of hours member worked each month, cost of supplies, value of surplus honey and wax, and yearly profit. Other data, such as number and dates of honey flows, date of swarming, etc., are kept. The record book, together with a story of the year's work, is handed in to be graded. Prizes are given for the best records, great-



C. F. Stiles, Stillwater, Okla., director of the Oklahoma Boys and Girls' Bee Club, on the scene of his successful labors.

FROM THE FIELD OF EXPERIENCE

est profits, highest yields, and best exhibits at county and state fairs.

Altho 1918 was one of the poorest honey seasons in the history of the State, a number of young beekeepers produced over 100 pounds of surplus per hive. The first prize in production went to Roy Smith, an orphan boy of Darlington, whose colony of three-banded Italians stored 125 pounds of surplus honey. A little girl, Edith Couch of Choctaw, Okla., came second with 122½ pounds. Her sister Edna, who was also a



A member of the Oklahoma Boys and Girls' Bee Club who uses homemade packing cases for wintering.

club member, had a colony that stored 112 pounds in the supers. These two girls have a brother who also aspired to be a real beekeeper. Altho he made a good record, he was beaten by both his sisters. His bees produced 68 pounds.

One of the most progressive and enterprising bee-club members is Neil Woodward, who lives on a farm near Oklahoma City. He started the season last year with five colonies. He had two swarms, sold one colony, and secured 200 pounds surplus, which was sold at a good price in the city. He winters his colonies in wooden packing cases with two hives to the case. He has never had a loss with this method.

At the Masonic Home at Darlington, Okla., 10 boys and girls became interested in beekeeping and joined the club. The Trustees of the Home bought each of them a hive of bees. None of these youngsters had ever worked with bees, and some of them had never seen a real honeybee at close range, yet under the instructions of

Mr. Stiles they were able to secure a combined surplus of 1,100 pounds, and increase their colonies to 25. Two of these were transferred from boxes and the remainder were swarms. A yield of 125 pounds, the state record, was made by Roy Smith, one of the youngest members.

The bee club is a comparatively new thing in Oklahoma, but its effects are already beginning to be seen. Its membership of 97, which will be doubled in 1919, is scattered over the greater part of the State. Boys and girls who knew absolutely nothing about bee culture, are becoming experienced apiarists. The old folks, seeing what their children or their neighbor's children are doing, are beginning to realize the possibilities of keeping a few bees for pleasure and profit. It is expected by the men who are back of the movement that the boys and girls' bee club will make a great change in the beekeeping map of Oklahoma within the next few years.

W. J. Green.

Stillwater, Okla.



HOMEMADE HIVES

Are They Always a Nuisance? A Beekeeper Who Thinks They Are Not

When the bees from that two-frame nucleus you received and placed in the back lot with so much pleasure begin to increase, and there is need of new hives, do not be discouraged because you have no money to buy them. I will tell a little of my experience, hoping it may be of some help to those situated as I was.

From local merchants I purchased soft-pine drygoods boxes, and with only a hand-



A homemade hive with hive-stand and bottom-board combined.

saw, square, plane, and hammer, I made them into hives which have been in use since 1912. The intention was to let the bees earn money enough to buy themselves a new house; but I see no reason why I

FROM THE FIELD OF EXPERIENCE

should discard these old ones, even tho the bees have made enough each year to buy a new one. Boxes with boards tongued and grooved should be secured, so in case there are no boards wide enough for the bodies they can be spliced. I made the ends double. This keeps them from gaping at the corners; and by taking out the two outside combs, putting in division-boards, and packing, they make a good hive for winter in a moderate climate. I have bought boxes for 15 cents, each of which would make a complete hive except the frames, which I always bought factory-made.

When the bees began to increase faster than I had time from my main business to make hives for, complete hive bodies were bought, making at home only the bottom-boards and covers. The illustration will show how these were made. Notice the hive-stand and bottom-board combined. They are very convenient, even tho they are somewhat heavier. When the pieces of the stand rot from resting on the ground, others can soon be nailed on. A cheap grade of roofing helps to make a cover which does not leak. By making the covers deep, two blocks of wood or pieces of brick may be placed underneath on top of the inner cover, thus doing away with the shade-board. For winter I place newspapers over the inner cover, filling deep covers with leaves. With a little care one can turn them over the hive without spilling out the leaves.

If you have all the work you can do at

good wages, perhaps this plan will not appeal to you; but with an hour or two a day of spare time, and a love for the bees, it is regarded only as a pleasure. My apiary has increased from the two-frame nucleus bought in the spring of 1912 to more than 100 colonies, and they are nearly all in hives made as described. The bees have paid all expenses for hives and supers, built a workshop and honey-house, bought an extractor, besides some Liberty bonds, and all the work was done aside from my regular business. This is not so wonderful from a business standpoint, but with the pleasure added it is worth while.

Wm. Bair.

Odon, Ind.

[There is no reason why homemade hives may not be made by those who have time, if such hives are made standard, and if the beekeeper is a good enough carpenter to make them exactly true. Otherwise homemade hives are a long-drawn-out nuisance. —Editor.]

HOW HE WINTERS HIS BEES

A Homemade Hive-cover that Lasts for Many Years

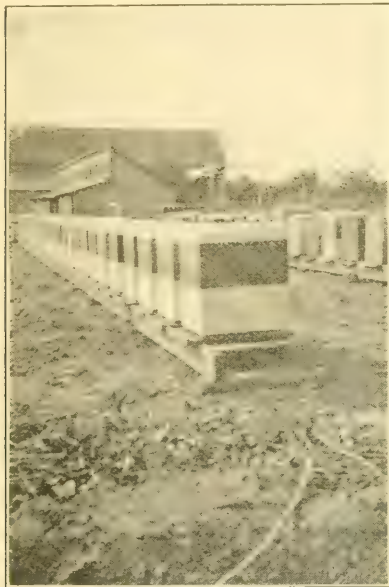
As you can see by the accompanying pictures of my beeyard, I believe in protection, both as to windbreaks and packing. The tight board fence is but six feet high, but the yards are narrow and short, being divided off in sections. I have about 200 colonies of bees at present, all in first-class con-



Olsen's bee-yards are narrow and short, divided by wind-protection fences.

FROM THE FIELD OF EXPERIENCE

dition both as to stores and bees. This season they are packed in the brood-chamber with an eight-inch chaff tray on top,



Another view of the Olsen hives.

covered with tarred paper. I like that way better than the double tier as shown in the picture. Prepared that way I hardly ever lose a colony. This fall I am trying a few packed by the Demuth plan, as that appeals to me as being the ideal way of fixing them for winter.

I make my own hives and frames, and can say that no factory-made hives excel them for durability, neatness, and fit. They are interchangeable in every part. I believe I have the best cover that can be made, except the metal cover, for this trying climate. It was only after several attempts that I succeeded in making these good covers. A



Olsen's workshop and high board fence in back-ground.

rim 2 inches deep was made, and then taking boards 6 inches wide I beveled them on the outer edges and nailed these boards so beveled on to the rim. This left 4 inches between the two boards of the cover. This four-inch space I filled at each end with a block 4 inches long, and covered the lengthwise open space with a board $5\frac{1}{2}$ inches wide, double-beveled on top. This plan gives the top of the cover a slanting-roof effect that sheds rain well and quickly. The covers so made 25 years ago, out of good lumber, are nearly as good as when first made, while all other kinds (except a few metal covers) went to pieces and were gone years ago.

Hooper, Utah.

Sophus Olsen.

WINTER-ENTRANCE QUESTION

Small Entrance Good, but Should be Level with Bottom-board

In reading November Gleanings I was very much impressed with the perforated-entrance-block plan. No doubt the fewer holes you have the better; but that part of it depends largely upon the locality. In my section, which is along the eastern shore of Virginia, I should not like to use a very small entrance, on account of such damp atmosphere prevailing here. I have lost colonies in the winter because of too small entrances, these not allowing enough room for the damp air to get out.

Speaking of the holes, I am bound to acknowledge the fact that they are all right; but why consider only the escape of warm air, and not also the poor working force of bees that is detailed to drag out the dead bees. It looks like a man's jumping on a fence and then reaching down and grasping hold of whatever he can get on the other side. Why not cut pieces out of the block $\frac{3}{8} \times \frac{3}{8}$ and then allow the block to rest on the bottom-board? By doing so you still have the holes, and all the bees have to do is to drag the dead ones right out without having to raise them up while standing on their heads? M. L. Jones.

U. S. S. Delaware.

[If the entrances were too small to allow damp air to get out, they would doubtless be small enough to prevent damp air from entering; and Dr. Phillips claims that if bees are wintered in the way he advises there will be no necessity for planning a way to get damp air out of the hive, for there will be none in.

Dead bees that collect on the bottom-board would be more apt to clog the entrance if the entrance were on a level with the floor. If it is true that with these small entrances the colony will not allow dead bees to accumulate, of course this objection would not hold. We are trying some both ways here at Medina.—Editor.]

H. H. ROOT,
I'm de-
lighted to
see you putting
in use a talent
for juggling
with figures as
shown on page
14, January
Gleanings. Those

who have never tried anything of the kind
will hardly appreciate the labor involved in
that table of cost of honey packages. Please
juggle some more.

This comparison of prices is especially in-
teresting at this time when so much thought
is given to the matter of conservation and
of waste. Suppose 375 pounds of honey are
to be furnished to consumers. It may be
furnished in 3-oz. jars. It would take 2,000
jars, at a cost of \$121.14. It may also be
furnished in 5-lb. cans. It would take 75
cans, at a cost of \$78.60. The difference
between \$121.14 and \$78.60 is \$42.54.
Doesn't it look a good deal like a dead
waste of \$42.54 to have the honey put up
in 3-oz. jars rather than in 5-lb. cans? But
that is figuring everything at cost. Sup-
pose we figure on actual sales to consumers.
In this market the consumer has been pay-
ing \$1.60 for a 5-lb. can, so he would pay
\$120 for 75 cans. A 3-oz. jar would hardly
be sold for less than 10 cents, so he would
pay \$200 for 2000 jars. The difference be-
tween \$120 and \$200 is \$80. Very likely
the consumer would think himself \$80 out
of pocket to buy in the little jars, if he
could get the 5-lb. cans.

There may be markets in which the con-
sumer prefers the very small package, but
it lies a good deal in the power of the pro-
ducer to influence sales in larger packages,
and, if he is a lover of his kind, that's ex-
actly the thing he will do.

* * *

J. E. Crane says, page 25, "I suppose I
have fed more than 50,000 pounds of sugar
during the past 10 years without the addi-
tion of a pound of honey or an ounce of acid
to prevent granulation, and I do not see that
the syrup granulates any more than when
I used honey or acid." Grace Allen says,
page 29, "We have often fed sugar syrup,
one part water to two generous parts sugar,
several times $2\frac{1}{4}$, and occasionally $2\frac{1}{2}$,
with neither honey nor acid added, and
have never experienced the slightest granu-
lation." Same thing with The A. I. Root
Co., and probably hundreds of others. Does-
n't that warrant us in saying that acid is
never needed in sugar syrup and can do no
good? And if it isn't needed and does no
good, I'm afraid it may do at least a little
harm. Now arises one who says, "But it
does granulate with me; granulates badly."
What are you going to do with him? You
might say to him: "Well, adding acid
doesn't do any good anyhow. Mr. Crane
says there is a little granulation without
the acid, but no more than with it." But

STRAY STRAWS

Dr. C. C. Miller

it would be a
hard job to
make a candy-
maker believe
that acid does
not prevent
granulation. The
candy-books
make acid a
first requisite in

making fondant. I asked an experienced
maker of home candy, "Can you make fon-
dant without acid?" "No; it'll grain
every time." I think we shall have to ad-
mit that acid lessens the danger of granu-
lation in those cases where it is likely to
occur, and to recommend the use of acid in
such cases.

But who can tell us in what cases granu-
lation is likely to occur, and why it occurs
in one case and not another? As Mr. Crane
says, the bees have a trick of changing the
syrup so as to lessen granulation. I think
it is generally agreed that to give the bees
the best chance to do this the syrup should
be fed thin and early. Possibly it doesn't
matter so much about the thickness if fed
early enough. But if fed late it will hardly
do to feed thin, for if fed late enough the
bees cannot evaporate it, and then there
will be trouble. The whole thing is in some-
thing of a muddle.

* * *

J. F. Dunn is enthusiastic over double-
walled hives that he has been using for a
good many years. They are made of cypress
boards $\frac{1}{4}$ inch thick, or of pine $\frac{3}{8}$ inch
thick. Neponset paper is glued on the out-
side of the inner wall and the inside of the
outer wall. Between the walls is an inch of
packing of cork "ground up, regranulated
until about like flour." Thus packed, the
hive is no heavier than the ordinary single-
walled hive of seven-eighths lumber, but
greatly superior. "Bees seldom swarm in
these hives or cluster outside on a hot day.
They are so perfectly insulated the bees
have no trouble in keeping their hives at
any temperature they choose even in the
coldest weather, and are very quiet at all
times." He used four-colony cases for
years, and bees wintered well in them.
"But," he says, "four of my cork-packed
hives cost less than four single-walled ones
plus cost of a winter case; and the time
consumed in preparing for winter is almost
negligible."—Canadian Horticulturist.

* * *

As to that new metal comb, mentioned on
page 9, January Gleanings, it would not be a
very reckless thing to predict that not many
years from now it will be forgotten. This
is on the general principle that the great
majority of the new things that have been
discovered and invented in the last half
century have been relegated to the junk
heap. Yet so long as one out of 10 may
prove to be a success, it is well to foster
the other nine until their failure is proved.

Of course, there is the chance that aluminum comb, even after having made a brilliant showing, may develop some unexpected objection that will throw it out of the running. But let us look kindly and hopefully toward its future. If it should succeed, it will be especially valuable in regions where American foul brood is found—and it is becoming difficult to locate regions where it is not found. To the man who has had experience with American foul brood, probably the thing that he dreads most about it is the melting up of his nice brood-combs. Indeed, if taken in time—even if not in time for the Kight treatment—it may be so managed that the set-back from it is hardly worth considering, were it not for the remorseless destruction of brood-combs. And unless there is something I don't understand about it, with aluminum combs the disease may be destroyed and the combs saved. That will be worth thousands of dollars.

* * *

Iona Fowls, you've done a rather daring thing, page 42, January Gleanings, in trying to tell what is "a strong, a weak, and a medium colony." I don't know that any one else has ever done it, and I don't know that any one can do it better. It surely is important that we have a more definite understanding about some of the terms used in beekeeping. For instance, when we speak of a bad case or a mild case of foul brood, do you and I have the same idea in mind? If a beginner were to ask me what I meant by a bad case of foul brood, I'm afraid he wouldn't get a very satisfactory answer. Possibly I might say, "Oh, a case in which a lot of the larvæ are diseased." And the conversation might continue like this: "But what do you mean by a 'lot'?" "Why, a considerable proportion." "But what proportion is a considerable proportion?" Thus driven into a corner, "Well, I don't really know, but I think I should call it a bad case if 50 per cent of the larvæ were diseased." And I don't at all know whether that would be right or not. Do you? What we need is some sort of authoritative answer that shall be definite and specific, something after this fashion: If less than one per cent of the larvæ are diseased, it is a very mild case; if one to 10 per cent, mild; 10 to 35, medium; 35 to 50, bad; and beyond 50, very bad." Those figures may not be at all correct, but I'm trying to give the idea. Now who will help us out on these things? I am tempted to say to you, Miss Fowls, in the words of Mordecai to Esther, "Who knoweth whether thou art not come to the kingdom for such a time as this?"

* * *

You wouldn't think to look at C. E. Fowler that he was a man of such vicious disposition, but see how he goes for me with a flatiron and a Swedish girl on page 38, January Gleanings. Well, if his bees are

stupid enough to start in with cold honey, same as the girl did, then it may turn out the same way. Anyway, I'm not so set on having honey a balance-wheel but that I can forgive the attack, but I cannot forgive the insidious attack on page 18. It's a put-up job between him and the editor. Knowing I'm still sore from the tumble I got from my high horse about skyscrapers, they rub it in by giving that skyscraper pile of Harry Edsall. Well, it's a long lane that has no turn. [I will guess it is, and that you will be in ambush right at the "turn" with a big shillalah.—Mng. Editor.]

* * *

You say, Mr. Editor, page 13, "The time will never come when one can afford to extract all the honey from his bees, brimstone them, and buy more bees." That, of course, refers to buying bees from the South in spring. Like enough you're right, and yet a pretty good case can be made out from David Running's statement. A package, when fed up, cost him \$4.37. If he had a colony in the fall from which he could extract 26 pounds of honey, brimstoning the bees, and should sell that honey at 17 cents, it would bring him \$4.42. He could then kill his bees, spend 4.37 for the package, and be 5 cents to the good. I am, however, just a bit skeptical as to the package always giving as good a return as the home-wintered colony.

* * *

A. I. Root says a good word for sunflowers, page 47, January Gleanings. I planted quite a patch one year, but saw no striking evidence that it was of much value to the bees. A good deal is said about the Mammoth Russian variety, but I have some doubt about its being better than the common. It has much larger seed, but it's the shell that's large without any corresponding enlargement of the kernel. I suspect more meat and oil would be found in a pint or a pound of the common sunflower than in the Mammoth Russian. Still, I don't know very much about it, and I don't know which kind would yield the most oil per acre.

* * *

Here's a rather striking ad of a commission house in a Chicago daily:

STOP THE 'FLU'

Eat
Honey
Oranges
Grapefruit

* * *

Mr. Doolittle advised, page 597, October Gleanings, that sections should be taken from the hive as soon as sealed over. That's right; only once in a great while the sections will be filled and sealed so rapidly that under ordinary conditions they will become watery when stored in the honey-room. So it is well to be on the lookout for such very white sections, and give them an extra chance for ripening, either on or off the hive.

THAT account of aluminum combs by E. R. Root, page 10, is fine. Now, it may be true that bees will breed and store honey in such combs; but one thing is certain, when such combs get clogged with old hard pollen and other refuse we cannot scrap them into beeswax, which we find very convenient to do in the case of all-wax combs.



Perhaps a word or two about bees flying late in the season will be in order. I do not think brood has anything to do with it, as the brood is usually all hatched in this section by Sept. 25 and so could not in any way influence the flight of bees two months later. If the temperature is low all thru November as a year ago, bees will fly sparingly on some of the warmest days, as was the case in the fall of 1917. But if the weather is cool thru late October and till the latter part of November, and then there comes a warm, sunny day, with the thermometer up to 60 degrees in the shade, bees will fly a great deal, as was the case this year of 1918.

That article by J. F. Kight is of much scientific interest, as showing the possibility of curing American foul brood in the early stages of this disease. However, its practical value does not seem large, as probably not one beekeeper in a hundred would discover this disease until past cure. I tried curing a few colonies of this disease more than 40 years ago by cutting out the very few cells I found, but without success. It was a rule of Moses Quinby years ago to destroy any colony in which even one cell of diseased brood was found.

I have received from O. F. Fuller of Blackstone, Mass., a beautiful sample of clethra honey. It is of fine color and quality. He informs me that some beekeepers have received from this source as much as 300 pounds from a single colony. This plant thrives from Maine to Florida near the seacoast. Another species that grows into a tree is found in the Central States and still another on the Pacific coast.

The possibilities of pound packages, as given on pages 12 and 13, certainly seem great. The prophecy of yesterday becomes the reality of today. A dozen years ago flying machines were little more than a dream; today they are a reality as truly as automobiles. We anticipate great things from this source, in the near future.

That hive illustrated on page 18 is a skyscraper, sure, for we can see where the up-

per story touches the sky at the top of the picture. Well, if beekeepers do not produce more honey this year than ever before, it will not be the fault

of Gleanings in Bee Culture in trying to induce them to do so. Such pictures are a healthy stimulus.

I was reading in an old book some time ago of a wonderful remedy for many kinds of the troubles from which mankind suffers. It might almost be called a panacea. It should be in every family and neighborhood. It is especially valuable where two or more beekeepers are trying to cover the same territory. It is easily remembered: "Thou shalt love thy neighbor as thyself." [You have quoted the best authority on earth. But out in California and Australia they are looking about for some law-made assistance in "such cases thereto pertaining." You may recall also something about trusting the Lord but at the same time keeping one's powder dry. Isn't it time for a little powder, possibly?—Editor.]

"Can Bees Hear? Who Knows?" page 23, January Gleanings. Yes, sir, bees can hear; else why do they use different sounds, one for anger, one for joy, another for a call, and, perhaps, many we do not understand? If honey is coming in freely, we do not need to open a hive to find it out, for we can tell by the sounds that come to us from the apiary.

Dr. Miller, I believe, is the first to give the correct temperature for the cellar wintering of bees (see page 24). He says: "Find out at what temperature bees are quietest by your thermometer in your cellar, and then try to hold it there, keeping in mind that Mrs. Demuth says a lower temperature is needed towards spring."

My experience has been that for bees wintered outdoors there is much less danger of starvation when on seven or eight combs than when wintered on ten combs. They need much more honey in the larger hive to make them safe. If wintered in the cellar, the same rule will hardly apply (see page 24).

December, 1918, was much milder than a year ago, the thermometer scarcely getting down to 10 degrees, while in December, 1917, there were several mornings when it registered from 12 to 25 degrees below zero.

"It has always been my father's rule," says C. O'Donnell, page 19, "never to mind how much honey he gets, but how well the bees are supplied with it for their long winter rest." A good rule.

THIS February Food Page is not for you, Mr. Beekeeper, nor is it even for Mrs. Beekeeper this time. It was written for the ladies and gentlemen of twelve years old and under. I hope there are some in your family.

Children, I am going to tell you a true story about a little girl just eleven years old. When she was six she began going to school—just like you did, or will, if you are not yet six, and she went to school every day and studied her lessons and had lots of fun, just like you. But this fall, when she was in the seventh A grade and everything was going fine, a great, big, terrible giant came to the town where she lived, and he scared the fathers and mothers and health officers and school board so badly that they closed the picture shows, the churches and Sunday schools and even the public schools, and kept all the children at home. The reason they did this was because wise people found that the wicked old giant went where there were crowds, and he liked crowds shut up in close rooms where the air grew bad. The strongest locks on doors could not keep that old giant out, yet no one ever saw him, for he was invisible. You know what invisible means, don't you? It means he was just like the air around us, and you could not see him at all.

But he slipped into crowds and softly touched many people, and nearly everyone he touched became very sick in a few days, and had dreadful pains, and many of them died. There, you can guess that giant's name, can't you. It is "Influenza" and we call him "Flu" for short. He came to our town, and he went to your town, and I believe he visited every town in our whole country and nearly every place in the whole world, and everywhere he went he took sickness and sorrow and death.

Now, this small girl (we may as well call her Helen) is used to studying and learning many interesting things all thru the school year, and when old giant Flu scared the people so badly that there were no schools she hardly knew what to do with her time. She played and played, and she read all the stories she could find. Just about that time the girl who had been helping her mother

OUR FOOD PAGE

Stancy Puerden

with the housework went to a city to work in a factory. As Helen's mother is not very strong, she would have had a hard time if some good fair-

ies had not helped her. You did not know that there were fairies outside of story books, did you? Well there are, wonderful ones; and I suspect I could find some right in your own home if I should visit you. Helen's mother named three of the most helpful fairies in their home Jane and Sally and Sukey. These fairies are the best workers you ever saw, but they all need some human being, like you or me, to watch them and work with them. Good Jane is the fairy who cleans rugs and curtains and mattresses; but, altho she does just dandy work, she needs someone to lead her around by the hand to see that she gets over every bit of the rug. As is often said of her, she fairly eats dirt.

Helen and Jane can work beautifully together, but to tell the truth, Helen would far rather work with Sally. It's Sally's business to wash all the soiled clothing, sheets and pillow cases, table linen, towels, etc. You have often heard your mother talk about how hard it is to find a good washerwoman, haven't you? Helen's mother feels just that way about it, too, and she does not like to send the washing out of the house to be done in some kitchen which may not be clean and where old giant Flu or some other bad old

giant would sprinkle the clothes with disease germs. Also, she does not fancy the light-gray complexion of clothes which visit steam laundries. That is just the way your mother talks, isn't it?

Sally is big and strong and willing and does very interesting things. She can wash a large tubful of clothing in 15 minutes, and when they are clean she can lift all those clothes right out of the water at once and then whirl them around, like a merry-go-round or honey-extractor, until they are as dry as if they had been run thru a wringer. That is the part of the work where Helen likes to boss Sally, for, wonderful as she is, Sally hasn't much head on her and has to be directed when to do the different things. After the clothes have been boiled and thoroly rinsed, Helen and her mother give them back to Sally to let her whirl



them again until they are dry enough to hang on the line, and good Sally never smashes buttons nor presses creases into the cloth, and yet she can whirl those clothes much drier than a wringer makes them.

Helen also likes to push Sukey around, altho Sukey is hot-tempered and has to be handled with care. She and Sukey together can iron one of her best gingham dresses until it looks like new.

Now don't you honestly think the fairies in Helen's home are just as nice as the story book fairies? The queen of these fairies is called Electricity.

But altho the fairies help so much with the hardest part of the housework there are many things they cannot do. They cannot make bread and cake and pies and get dinners and suppers and breakfasts, and that is very important work, for people must eat to live. You know small girls always like to do just what they see their mothers do, and so Helen very much wished to try to cook. When she was a tiny girl she used to make cakes of cornmeal and water, and then, when she had gone off to play with her dolls and forgotten them, her mother sent them to the chickens or pig.

But a young lady of eleven is too old for play-cooking so her mother let her try some real baking that the family could eat. One of the first things she made was cornbread or johnnycake. Her mother gave her the recipe and worked at something else in the kitchen, so she could watch the mixing, but she did not touch it at all. Helen did everything from beating the egg thru measuring out the sour milk, the cornmeal, flour, soda, salt, and shortening. And what do you think her father said when he tasted that johnnycake? He said, "It is very strange Helen can make a better johnnycake than you can, mother, when you made up the recipe." My, but that made Helen's eyes sparkle and her cheeks grow red.

I think the next thing she made was a pumpkin pie—the filling, not the crust. You see her mother was too busy to teach her cooking in the order that a cooking-school teacher would, so Helen made things just as they were needed for the family. Now Helen has an older brother that is just the worst tease you ever saw. He always makes believe he does not think Helen can do things well, and he never thinks of giving her a compliment. You know brothers are sometimes like that. But let me tell you how he gave her a compliment for her pie without meaning to. He ate every crumb of a large piece every time she made a pie, so she knew he liked it, even if he did not say so in words.

Well, Helen went right on learning to cook nice things for the family until she knew how to scramble eggs, make tea and coffee, bake, fry and oven-fry potatoes, make graham muffins and baking-powder biscuits, piecrust, boiled salad dressing and fruit salad, tomatoes on toast, chocolate pudding and buckwheat griddle cakes. She has cook-

ed a meal all alone several times and served it on the table. Her dad is so proud of her griddlecakes that one Sunday evening he invited in several of the neighbors to eat buckwheat cakes which she had mixed and baked all alone, and she often makes them for breakfast.

When she learns to cook something new she copies the recipe down in a nice little blank book, so pretty soon she will have a cook book all her own.

One day when Helen's mother had been baking some bread her father held up a slice and said, "Helen, if you will bake a loaf of bread as good as that I will give you a War Savings Stamp for your book." Your mother can tell you that a good loaf of bread is one of the hardest things for a cook to make; that is, it takes more care and skill than most fancy desserts. But Helen started right out after that War Savings stamp, armed with her mother's bread recipe, cut in two, to make it easier for small girls to handle. I shall have to admit that a fairy helped her, not one of queen Electricity's fairies, but just a plain fairy, called Lizzie. You see Helen's mother had been helped the past five years by two Hungarian Lizzies, one after the other, just she often said she had never had a tin Lizzie yet. But when her last Hungarian Lizzie had gone she decided to name the bread-making fairy "Lizzie." You see that is a very good name for her, for she is made of tin and has to be cranked just like the tin Lizzies that are made in Detroit. But it is very easy to crank that kind of a tin Lizzie, and she is so helpful in making bread. Helen first measured the flour which the recipe called for and sifted it and the salt into the Lizzie and covered it and put it into a warm place. Then she took the rest of the flour and mixed it with potato water and yeast and sugar and beat it well and put that in a warm place too. You see bread in the making is just like a new baby sister in one respect—it must be kept cuddled up in a warm place. This work she did just before supper time, about 5:30. At bedtime (she had to stay up a little later that evening, but you see there was no school) she turned the sponge into the Lizzie, added the rest of the warm water, and turned the crank about three minutes. By that time it was a dough, smooth and easy to handle. Now Helen's mother thinks white bread is finer and lighter, if the dough is taken out and kneaded by hand a few minutes, so Helen turned hers out on the kitchen cabinet, on which some flour had been sifted so the dough would not stick, and kneaded it carefully about two minutes longer. The kitchen had to be warm or the bread would have been chilled, and then it would have been sullen and refused to rise. When the dough was smooth and elastic it was put back into the Lizzie, carefully covered and cuddled under a clean old blanket, kept for that purpose, and put in a small room over the furnace. In making bread by

(Continued on page 118.)

HOW fast shall side liners increase? Well, it's this way. If you're keeping bees for fun, and you can get more fun out of 50 hives than

out of 5, keep 50. But if 50 will worry and crowd you, changing your fun into hard work, stick to 5, or some happy number between. If, in addition to the pleasure of caring for them, you are likewise interested, as you should be, in seeing how much surplus honey you can coax out of each colony, and how much profit each colony may be made to yield, then do notice what C. E. Fowler says on page 18, January Gleanings. "I am, therefore, sending a photo showing what a happy combination of locality, good season, good queen, good hive, and good beekeeper can accomplish when only a few colonies are kept." And then please notice the photo. There is a law, so I have heard, operating in the business world, known as the law of diminishing profits. Because five hens (fed perhaps on table scraps) net their owner five dollars; it is unwise to assume that 5,000 hens will net 5,000 dollars. Because a side liner, working five colonies intensely, thoroly, enthusiastically, gleans an average of 100 pounds each, he is not in a position to assume that he could get the same average from 100 colonies.

I know at least one side liner who has increased too fast, and is, moreover, in danger of continuing to do so. Every year, since that particular little back yard has had more than eight or ten colonies, there has been a large per cent (a much too large per cent) of non-producing hives. That certainly cuts the average badly. Better one hive yielding surplus than a score that give you naught.

Of course, that's a side-line view. There are necessarily other angles of vision and judgment. When it comes to doing it all on a large scale, only the great totals to be considered, there is an intensive method, and there is an extensive method. Without doubt, it is largely a matter of temperament which is better suited to individual beekeepers. But if it is a few hundred pounds of honey you want, with the chance of perhaps making a record, and plenty of good fun doing it, with as small an investment as practicable, then the odds are that your greatest satisfaction lies within the limits of a few hives, very carefully kept. And along this safe route lies good beekeeping.

* * *

A Tennessee Side Liner.

I want to tell you about Wm. Morris of Hendersonville, Tenn., and his method of wintering. One Sunday last month we went to visit him. The interurban took us a delightful run from our county into his, giving

Beekkeeping as a Side Line

Grace Allen

us a glimpse of the shacks and stacks of the largest powder plant in the world, rolling us thru attractive country and past prosperous farms. Then we

walked to Mr. Morris' place, dropped down into a hollow just over the brow of a small hill. Part of the residence is old, old, old—no one knows, Mr. Morris says, just how old, but it was built while that section was part of North Carolina. We went into the shop, a sturdy old log structure, with an immense fireplace across one end. In contrast to the delightfully quaint flavor of all this was the modern outfitting of the shop—a gasoline engine, rotary saws, sliding tables, and various impressive things I hesitate to describe or even mention lest I advertise my own ignorance. You see Mr. Morris is a practical woodworker, and he has made almost everything on the place except those old buildings. My constant questioning, "Well, did you make that too?" became quite superfluous. He had apparently made nearly everything around.

It was in California, where he lived for several years, that Mr. Morris got his first experience in beekeeping. Being very enthusiastic about the work, which he studied thoroly, he resolved, upon returning to Tennessee, to try his hand at it here. When we met him about five years ago, he had thirty-odd colonies, amazingly tiered, in a small city back yard. They were then strictly a side line, to which he was utterly devoted. Now that he is in the country, he is approaching the one-hundred-colony mark, in spite of the loss of last winter that made him turn his attention so seriously to the problem of wintering. He has recently moved about 80 colonies a few miles away to a sweet-clover area, and will set about building up another home apiary in the spring.

Now about this Morris plan of wintering. His colonies are in standard 10-frame hives. In winter they are placed this way: at the bottom a body of empty combs, with a well-contracted entrance; over this, a rimmed cover like an escape-board without the escape, but with a round hole bored in each forward corner; over this the brood-chamber; then a little rack placed crosswise of the frames to allow a runway under burlap; then a tray of chaff, with burlap tacked across the bottom; and last of all the jacket. This jacket is made of 1-inch material, dressed to $\frac{3}{8}$, of a size to allow a $\frac{3}{8}$ -inch dead air space all around the hive. It slips down over the chaff tray, over the precious brood-chamber and about two inches down on the body of empties, where it comes to rest on a cleat (1 inch by 2, I think), that goes all the way around this body, thus effectually closing the air space. All pos-

sible cracks between the different bodies are thus covered and protected from draft. Tiny $\frac{3}{4}$ -inch blocks, properly placed at each corner of this roundabout cleat, will hold the jacket in position, equally spaced.

Cold winds, blowing thru the contracted entrance into the center of the body of empty combs, can not strike the bees, up there above the escape-board. Neither can bright light shine in to rouse them. Raised well away from the entrance, anyway, they are further protected from the exposures by this board, with its only opening at the two forward corners. These holes provide the bees, of course, with air and exit. This board is the only feature that is new to me, but the combination is new. Moreover, it is convincing. Perhaps the majority of bees in this section will always winter unprotected. Yet a growing number of progressive beekeepers are looking for some method of protection that will be efficient, but less cumbersome and troublesome than the big packing cases recommended by the Department of Agriculture. The Morris method may come very near solving the problem. At any rate, some of us are very much interested and are watching the Morris bees with great hopes.

* * *

There is a certain grocer in this "Athens of the South" who is having a hard time conquering the intricacies of the honey business. First, his display of section honey bore the sign, "50c a pound." Then some one must have enlightened him as to the error of that each-little-box-weighs-a-pound idea, and now his display is bravely heralded to the passerby as selling for "50c a Cone." It was night, and the store was closed, when I saw it, or I might have ventured in to undertake a diplomatic correction. Yet it is almost too good to change. "50c a Cone"!

* * *

Beekeepers expect all sorts of questions, but this one was unexpected enough to be refreshing. It was when I was opening a few hives on the campus of Peabody College. I was alone, which was fortunate, as the bees were decidedly temperamental that day. One young lady hovered near. "Do you reckon they'll sting me?" she called out. "Better not come any nearer," I told her, as they were particularly unpolite at that moment. Then I forgot her. But after a few minutes a voice came floating over the breeze, asking with evident interest and baffled curiosity, "Just what's the idea of the veil?" I have always known that bee-veils were not especially becoming, but had supposed they had the virtue of being self-explanatory.

* * *

A WARM DAY IN EARLY JANUARY

Sometimes a year arises in his winsome youth
And fells grim Winter, unaware, and stands
All warm and radiant for a few swift days,
Before the tight-lipped Winter gathers back
His strength to claim his rightful length of life.
And in those few swift days

We drink the promise of the beauty
Of the wonder days to be.

Today is such a time, and here I sit,
Bathed in warm sun, in this my quiet spot,
Sitting on a beehive, where a score
Of hives are pouring out the bees to meet the sun.

They hum around,
And lull me to a strange content,
That, mingling with old longings and the call
Of things I know not if I dream of or remember,

Stirs within my heart an ancient mood
That hearts, I think, have always known.
For even as I thrill to sudden rapture,
A sense of sadness almost brings the tears.
Even while I surge towards heights of aspiration,

A quiet peace is bidding me, Be still.
Even while I would be swift in great achievement,

The lotus mood is drowsy in my blood.

There is a sense around of Beauty soon to come,
Beauty, that some swift and perfect day,
Shall come and walk beside me,
Yes, beside me and within,
Until I too shall be a part of very Beauty's self.

Against the sky's blue wideness
The bare treetops are swelled with mystery;
The grass is brown in patches, green in spots;
Dry vines, and ugly, rattle in the breeze,
While roses thru their thorns show hints of discontent

That shall unfold in time to living leaves.
My cock crows challenge to my neighbor's,
And a cat, awaking from her sunny nap,
Goes stretching lazily along the fence.
The sparrows twitter; a gray and black woodpecker

Bores and pecks and taps, up and down a tree—
And I—

O Poet-Heart that hath no Poet-Speech,
How shall we tell to other hearts
These things we feel?

These things that strike so deep thru eye and ear,

They are not all. There is a Spirit here,
And in this Presence I sit quiet.
Here among my hives. The bees hum on.
The winter sun is warm.

Old, old questions drift across to vex and tease,
Then slowly slip away, till lost at last
As in a quiet pool of wonder.
Shall I not sit and listen here to life
And touch perhaps the very garment's hem,
The young year standing forth like a flushed god,

While the hours pass by and by?

One dreaming hour ago I read a holy book
Of One who walked with men
Among warm groves and gardens,
Talked with them by twos or threes or crowds,
Along the seas and lakes,
And prayed alone on hillside
In the quiet hours and places.
He has much to do with these my thoughts,
My wonders,
Much to do, I think, with Beauty and with Life.

What is Life, O Beauty yet to be?
And what, O Life, is Beauty?

No answer. Yet, somehow,
The very asking brings the Spirit near.
Is this, then, prayer?
Is this, then, answered prayer?



FROM NORTH, EAST, WEST AND SOUTH



In Northern California.—November and December were excellent wintering months. The weather was cold and afforded little opportunity for flight, which resulted in but a small consumption of stores. The rainfall to date for the valleys is normal, but the foothill slopes of the mountain ranges will require two or more inches of rain during January in order to secure a good spring flow from such localities. There is a very active demand for bees and in some instances single-story colonies have sold as high as \$10 per colony. Scattered colonies including box hives and the like are being purchased rapidly by extensive beekeepers. This fact will minimize the danger of contamination thru disease in commercial apiaries, such small lots of mixed bees having often been a source of trouble.

Mr. Andrews, correspondent of southern California, in January Gleanings, mentioned the fact that many of us in California are unable to satisfy ourselves that American and European foul brood are two distinct diseases. In our part of the State this question is likewise debated among our leading beekeepers. Some of us contend that the two diseases are not distinct, reasoning that their symptoms in some instances are so similar that differentiation is made impossible. Nor has this been our only difficulty; for there have been cases where symptoms pointed toward American, and, strangely enough, the treatment for European in such cases proved efficacious during the latter part of last season. In such cases foul brood may reappear the coming spring. The writer will confess that he has marked colonies for American treatment, and, to his surprise, before such treatment could be carried out, the bees had cleaned out all infected material, not having left a single cell with a diseased larva.

Several reports have come to hand recently that colonies have been stolen from out-yards, and it would be well for beekeepers to visit their bees at intervals during the winter. Not only is this wise on account of theft, but also because cattle may knock over hives, and the wind may blow off covers or even supers (a super containing no honey may easily be blown off). The California Honey Producers' Co-operative Exchange will soon issue to the members of the local exchanges warning signs, which will call for a reward for the arrest and conviction of anyone damaging or stealing any apiary property of a member.

It will not be out of place at the present time to give a short review of our industry during the past year. The honey crop was from 20 to 50 per cent below normal and from 10 to 40 per cent below the average for the year 1917. The cost of production has increased by about 40 per cent over last

year. However, the increased value of honey has more than made up for both the smaller crop and the greater cost of producing it. Twenty-five years ago and at frequent intervals thereafter, California beekeepers have striven to market their crops by means of a marketing organization. Last year thru the united efforts of the California State Beekeepers' Association and prominent beekeepers not within the Association, a permanent co-operative marketing organization finally was established. The California Honey Producers' Co-operative Exchange not only has undertaken to market the products of its members, but likewise to purchase their supplies, aid them in matters pertaining to legislation, and help them thru educational channels. With us, honey production is now an established industry. The very fact that the beekeepers of the State have organized so quickly and successfully, has boosted the price of honey on the California markets several cents. Henceforth the Exchange never will permit the price of California honey to drop anywhere near the low levels to which it has fallen in the past. Whether or not there will be an export demand for honey, it will be but a short time before the Exchange will bottle the greater part of its sweets, and by means of judicious advertising will maintain a price equitable for both the producer and consumer.

Modesto, Calif.

M. C. Richter.

* * *

In Southern California.—Weather conditions at the present writing are much different from what they were last year at this time. We have had more rain than at this date one year ago, but we have also had considerable dry north wind. If January proves to be as wet a month as the average for the past 20 years, we shall start the season with good prospects. We have just had several nights of frost, the most severe for six years. Just what effect this will have upon the eucalyptus and other winter-blooming flora, I am unable to say as yet. Last winter being a very mild one, this bloom was of much value to many beekeepers. It is too early for the frost to do any damage to the citrus bloom, or to most of our surplus honey-producing plants.

The writer recently visited the "Region-below-sea-level," around the north end of the Salton Sea in Riverside County. This great basin is supposed to have been at one time a part of the Gulf of California. The Imperial Valley lies to the south of the Salton Sea and the Indio-Coachella Valley to the north. In these two valleys are found the great early-vegetable sections of California. The Indio-Coachella Valley is the only section in this country where dates are grown successfully for commercial use. Ar-



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tesian wells furnish the water for irrigation purposes, and many fine ranches are being developed. Mesquite grows plentifully over most of the country and is a good honey-yielder. This, together with alfalfa, furnishes most of the honey produced. Altho the cultivated territory is limited, the few hundreds of colonies of bees located there have done very well and have never failed to give a good honey crop.

The annual meeting of the California State Beekeepers' Association has been called for Jan. 29, at 2 p. m., at Exposition Park, Los Angeles. The sessions will continue thru the next day. A fine program has been arranged, and many prominent beekeepers will give their views on subjects pertaining to the industry and of special interest to beekeepers of the Great West. Queen-rearing, honey-production, organization, increase, selling the crop, and buying supplies are some of the topics up for discussion. This is the 30th annual meeting and it seems like a home-coming for the beekeepers to get together once a year. It has always been the practical rather than the theoretical side of the industry that drew the crowd.

Riverside County has an ordinance pertaining to the moving of bees and also to the giving of notice to the county bee inspector of the arrival of the bees. A carload of bees was recently shipped into Riverside County from out of the State, and the colonies were located near the orange groves. No notice was given to the proper authorities. The owner was arrested and fined \$50, of which \$10 was paid, and the balance remitted upon confession of guilt on the part of the beekeeper and his pleading ignorance of the law. It will be well for any person shipping bees into California to inform himself of the laws on the subject, thereby making unnecessary the repetition of this unfortunate occurrence. Altho some counties have ordinances so strict that they practically prohibit the bringing of bees into the county, it is hoped that it will never be necessary to frame such for the orange-growing sections. At the same time, the beekeeper who perhaps has a small orange grove, with a comfortable home on it, and who pays taxes and makes his living here in southern California, does not particularly enjoy the idea of having a carload of 300 or 400 colonies of bees set beside him—especially by some one who is only here for a few months to get all he can out of our early honey flow, and then beats it for his northern home, to make a crop up there. When the inspector looks over these imported bees and finds disease a-plenty—well, how would you like it? If you are coming to southern California with a car of bees, please try to bring clean bees—colonies free from disease—and then go to some of the leading beekeepers in the neighborhood and

ask them to help you secure locations. You will not find them such bad fellows and may avoid ill feelings in the future.

It was very unfortunate for the beekeepers of this part of the State that they missed the fine course of lectures advertised to be given at Riverside by Phillips, Coleman, and other prominent beemen. Riverside was under such strict ban for the "flu" at that time, that the meetings could not be held on the dates set.

One of the most needed additions to our business, in southern California in particular, is a thoroly reliable queen-breeder, who will have facilities and equipment enough to supply queens in numbers at the time the beekeepers want them. We have several apiarists, who raise some queens for sale, but there seems always to be a time in the spring when there is a big demand for queens that cannot be met.

A pleasant surprise to beekeepers is the news that they have good prospects of getting supplies much cheaper than they got them last year. The Orange Belt Co-operative Exchange has already made a contract whereby its members are to get foundation made for two cents a pound less than they were able to contract for last year. While they have no contract for cans and cases as yet, there is confidence that they can get a better price than they obtained last season. Other supplies will, it is thought, not be any higher than last year, and many expect much lower prices. My local lumber merchant asked me the other day if I wanted any material for hives as he was ordering a car of soft pine, such as all of our hives are made of. Last year he could not get this material at all, which shows that the war is over and that the Government is releasing materials which were hard to get last year.

The date of the annual meeting of the Orange Belt Co-operative Honey Producers' Exchange has again been set—this time for Monday, Jan. 13, at 10 a. m. Riverside is the meeting place. There will probably be nothing to interfere with the meeting this time, as the "flu" conditions are much improved in these sections of the State.

Corona, Calif.

L. L. Andrews.

* * *

In Michigan.—The State Beekeepers' Association is now prepared to furnish a list of its members to advertisers or others interested. Apply to the undersigned, inclosing a stamped envelope.

The writer is trying to get together a list which will contain the name of every beekeeper in the State who is sincerely interested in the production of honey and suppression of disease. It is expected that within a short time a letter will be mailed monthly or as frequently as expedient to each name on this list. The letter will con-



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tain data, information, and suggestions of particular importance to Michigan beekeepers. If you are not already on the list of persons who receive the circular letters from the State Beekeepers' Association, then please send in your name.

The Legislature is now in session. Many of the members are in favor of increasing the appropriation for inspection work. There are many who are "neutral" and some who are against it. Now is the time to get right after the representatives and let them know your sentiments if it is to do any good at this session. One letter to one representative might save the day. One "kicker" in the Legislature frequently upsets the program of a dozen others. Be sure that YOUR representative is informed of the need of a further appropriation.

A short course for beginners and amateurs in beekeeping will be given at the Agricultural College beginning Feb. 24 and continuing till noon of March 1. Eight hours a day will be devoted to lectures and laboratory exercises in beekeeping. The course will deal chiefly with the particular information of which the beginner feels in need. The instructors at the College will be assisted by a well-known honey producer who will lecture chiefly on methods of production. This course is in no way intended for professionals. The object is to get the beginners started along the right path. For further particulars, write to A. M. Berridge, Director of Short Courses, East Lansing, Mich.

On Dec. 17, a joint meeting of the Lambton County Beekeepers' Association of Ontario and the St. Clair County Beekeepers' Association of Michigan was held at Port Huron. This meeting was one of unusual interest and enthusiasm. Mr. Armstrong from the Ontario Agricultural College and Mr. Rumford, Deputy Provincial Inspector, both gave very helpful addresses. One of the best features of the meeting was the banquet which was held in the evening. The toastmaster, John Farrell of Ontario, was a master in his position and so conducted the program of toasts that every person present felt fortunate in being there. We need more of such meetings as this one. The very energetic County Agent, C. L. Brody of Port Huron, was largely responsible for the success of the meeting. Meetings were also held during the month in Lapeer, Genesee, and Jackson Counties. The continued epidemic of "flu" compelled the abandoning of most of the program of meetings.

East Lansing, Mich.

B. F. Kindig.

* * *

In Ontario.—The month of December here in Ontario has been much milder than usual for this time of the season. About 10 above zero was the coldest—quite a contrast to the December of

1917 when we had several days away below zero. Generally speaking, milder weather earlier in season, with the extreme cold later on, is better for the outdoor bees than with conditions reversed; but too long a spell of very mild weather late in January is often harmful, as brood-rearing is apt to start. As a rule, we have our coldest weather here in February; and, with much brood in hives in January, an extremely cold spell lasting for weeks, following the mild weather of the previous month, often causes colonies to go to pieces badly. January to date (8th) has been moderately cold with two days below zero. On the whole, I should say that the winter season so far has been fine for the bees, altho they did not have so late a flight as we would have liked. After all is said and done, the main factor in good wintering for our locality isn't so much a question of weather conditions as one of stores, because an abundant provision of stores of good quality will generally bring the bees thru all right even if weather is bad; while, on the other hand, if stores are light or poor in quality, all the good weather conditions and good preparations in the way of packing, etc., are all for naught.

A very mild January when, as intimated, bees are inclined to start brood-rearing heavily, is the kind of a season when the brood-nest is about solid with honey. Such a condition proves a real bonanza, as the brood-rearing space is so restricted that the queen has little space to deposit eggs. That was the theory that the late Mr. McEvoy worked on, and the longer I keep bees the more I am convinced of the soundness of the plan in practice as well as in theory. To all who say that colonies can have too much honey and too little "winter nest" for good outdoor wintering in a climate similar to ours, I respectfully suggest that they try the matter out. Restrict the brood-nest in the fall and then feed these colonies so that combs are literally solid, and let that condition remain as long as it is possible to get the bees to take the feed (this for an extreme test), and if the colonies are reasonably strong in bees and reasonably protected, I feel almost like saying that I will stand the loss in wintering if loss occurs. As to this question of freezing the bees by reason of too much honey in the brood-nest, claims have been made that **cannot be verified by experiment**. No, we do not prepare all our colonies in that way, not even the majority of them. Reasons are obvious, for with so many bees it would take too much work. But one thing I am sure of is this, that all colonies thus prepared have always wintered in good shape, while many others, in the same winters, not thus prepared have not done so.

Owing to the influenza epidemic and other contributing circumstances, the date of the



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annual Ontario Convention is the latest on record. I have no program as yet, but have received notice that the convention will be held in Toronto on Feb. 3, 4, and 5. The meeting will be, I presume, at the usual place—the Carlsrite Hotel, near the Union station. With a fairly good season just past in the way of a honey crop and good prices, enthusiasm is high among the fraternity, and naturally we expect a good attendance at the convention. However, we always expect that much and are never disappointed in that line, as an attendance of from two to three hundred is a common occurrence.

I have just learned with regret of the sudden death from influenza of a young beekeeper engaged extensively in the business—Mr. Brunne of Arnstein, Ont. Mr. Brunne, with his father, operated a number of apiaries in the Parry Sound district of Ontario, a poor farming section in a general way, but a fairly good beekeeping district. The surplus obtained is from clover, raspberry, basswood, and fireweed, the sources being in value in order named, if I remember correctly. Mr. Brunne was a young man full of energy, just on the threshold of a useful life.

As to what Mr. Andrews says on page 30, January issue, in respect to European foul brood and American foul brood being distinct diseases, I ask if it is not locality, then what is it that would cause Mr. Andrews to make such a statement? Here in Ontario, at least, the two diseases, while having some things in common, have on the other hand so many things different that the veriest novice, seeing and studying them side by side for a season, would know positively that the diseases are entirely different. A comb filled with scales of dried-down larvæ from American foul brood **cannot be used again**, under any circumstances that I ever heard of, without transmitting the disease to any colony to which said comb is given. A comb filled with dried-down larvæ, half-dried larvæ, or **rotten** larvæ from European foul brood **can** be given to bees and not transmit the disease to bees that seemingly are immune to it. Do these conditions hold good in California or do they not? While I am not sure about it myself, yet I certainly believe the same results would be obtained with this test as we get here in Ontario. If wrong in this surmise, I will gladly be corrected; but, if right, then Mr. Andrews should not advance such views.

Markham, Ont.

J. L. Byer.

* * *

In Texas.—The second annual meeting of the county apiary inspectors was held at College Station on January 24 and 25. This meeting was a school of instruction at which time plans for the coming year's work were discussed with the inspectors. Particular attention was given this year to the new regulations, which are

to be rigidly enforced, that will prohibit the shipment of any honey at any place in the State without a certificate of inspection. Beekeepers of the State are warned to be prepared to meet the new regulations by having their yards inspected during the season. It is too early to discuss at this time the details of the program.

On Dec. 30, 31, and Jan. 1, there were held in San Antonio, Tex., the widwinter meeting of the educational section and the annual meeting of the business section of the Texas Honey Producers' Association. These meetings were very well attended by representatives of several of the beekeeping sections of the State, the average attendance at the sessions being about 45. A very enjoyable part of the three days' program was the banquet given by the Bexar County Beekeepers' Association to the visitors. The field meet which was planned for New Year's day could not be held on account of the severe weather. The program of the educational section was devoted to matters concerning the general uplift of the industry in the State. These sessions were presided over by E. G. LeSturgeon of San Antonio, who is president of the section. A talk by Prof. H. B. Parks, Apicultural Expert of the Extension Service of the A. & M. College, outlined the work which is being done with the beekeepers. The results shown certainly prove the value of the work. Plans for more extension work were outlined. In a talk by F. B. Paddock the more important results of the foul-brood eradication were mentioned. The chief plans for the coming year include more drastic regulations pertaining to the shipment of honey in the State. In the new regulations the shipper of honey will be responsible for the inspection certificates. The president brought before the meeting the outline for the legislative action of the section. This is to include a request for a bill which will create experimental apiaries to study the problems of beekeeping. Resolutions were adopted expressing confidence in the present efforts of foul-brood eradication and asking that no change should be made in the present management. A committee was appointed to prepare for the beekeepers of the State a list of terms properly defined. The meetings of the business section were presided over by Louis Scholl of New Braunfels, the president. Matters discussed at these sessions pertained to the advancement of the association. A report of the manager showed the wonderful results that have been attained, especially in the two worst years in the history of Texas beekeeping. The directors of the association in their meeting declared the guaranteed dividend of 8 per cent to be retroactive to the time when the money of each stockholder was placed with the association. The manager was given a vote



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of confidence by the directors and elected for another year. Appreciation was expressed to Louis H. Scholl as editor of the *Beekeepers' Item* for his efforts for the beekeeping industry of the State. Considerable additional stock in the association was subscribed by those at the meeting. The entire three days of meetings were filled with profitable exchanges of ideas and construction plans. Those who attended were convinced that the programs were the best that have ever been held.

Several of the large beekeepers in west Texas who lost so heavily last year are now trying to buy bees to fill their empty fixtures. Some of the parties are interested in the purchase of box hives. It is to be regretted that a large number of the box-hive bees can not be transferred to modern hives, but the owners of the box hives are always very reluctant to dispose of their holdings.

The mild treatment of American foul brood is certainly not safe in Texas. The most drastic measures are not more than equal to the task. Every effort is being made to discourage treatment, as the experience of the best beekeepers has shown positively that utter destruction is the real saving.

There will be considerable competition this year between the Texas beekeepers and the northern buyers of package bees. The losses in the State are going to be made up as soon as possible thru the purchase of bees in any shape from package to colony.

F. B. Paddock.

College Station, Tex.

* * *

In Florida.—During the last two months reports have been coming from all parts of Florida indicating that paralysis is more prevalent than usual. This is the only disease to which our bees are subject. There appears to be no remedy; nor is any needed, as the malady disappears of its own accord as soon as nectar begins to come in freely. Unfortunately, it appears at a time when every bee lost counts against a successful honey crop, because it is the bees that live thru the winter that gather the bulk of our orange honey, and a colony badly affected by paralysis seldom amounts to anything for the spring flow. Some years ago I used to have many paralytic colonies every spring. In some cases a strong colony would dwindle to a point where there was only a pint of bees, and then they would build up again in a remarkably short time; but since 1914 I have seen nothing of this disease except, perhaps, an occasional bee. The most extensive beekeeper in this part of Florida once told me that he had the same trouble every year until he placed his hives in sheds where the sun would never strike them. It is significant that paralysis has not appeared in my yards since the ma-

jority of the hives have been well shaded, tho in my opinion dampness is the cause of the trouble.

Altho we cannot tell at this time what the prospects are for a crop of orange honey, we can assume, provided there is no freeze, that it will be the biggest there has been for many years. The fall flow, lasting as it did well into November, has given us such strong colonies that we cannot fail to make the crop if we get the bloom. The experienced beemen will be prepared to care for the flow as they have never been prepared before, since no expense is being considered. Buzz saws all over the State are busily cutting out hive material, and big increase is being planned by all.

Now, Mr. Beginner, and you who own a few colonies of bees and work them on the "let alone and get all I can" principle, let me talk straight at you, for I can say here what I cannot say in person. This is the beginning of February, the bee-year has just commenced, and in four or five weeks swarms will be hanging in your yard. Have you ordered your supplies, your hives, supers, and foundation, or are you relying, as usual, on the generosity of your neighbor to accommodate you out of his own stock? I am speaking not only for myself but for everyone who is engaged extensively in beekeeping, when I say we do not want that class of beekeepers around us. You are a nuisance when you come expecting us to furnish the supplies you should have bought long before; and, if we charge a little more than catalog price, it does not begin to pay for the valuable time your request requires us to expend. It is difficult for us to refuse to sell a hive or some foundation when we know that your bees are not provided for, and when you see that we have big stocks of just what you want. You should remember that these abundant supplies have all been paid for months before we expect to use them, and, tho we may have more than we shall use immediately, we do not want to sell and then have to replace at a higher price. We are not in the bee business to accommodate you and make good your failure in your care of your own property. Most of us will willingly get what supplies you need if you will tell us well in advance; but we do not anticipate your need when ordering our supplies. You come to us for advice, and it is freely given, tho it has been dearly bought by hard experience; but you should not expect us to furnish the capital to carry on your business. If you have not ordered your supplies you have not a day to spare, as freight shipments are subject to much delay. For those of you in Florida the nearest agent carrying a full stock of goods is L. W. Crovatt, Savannah, Ga. I may speak plainly, but I wish you every success in the coming season.

Apopka, Fla.

Harry Hewitt.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Can Bees Hear? Possibly, Yes.

A. I. Root, page 739,
asks this question.

This is something that I have often thought of myself, because a few years ago I had a little experience that almost convinced me that bees can hear, but yet I do not know. One evening after sundown in the midst of the honey flow I had ground my scythe, and in walking along in front of a row of hives there was a post about 10 feet from the entrances of a few hives. When I got to the post I hit it a light blow with the blade, which gave a bell-like sound, when out shot a few dozen bees from several hives close by. I repeated the act several times, and it always had the same effect on the bees. Did the bees hear it or feel it? They surely did not see it. It seems to me that some of our old-time beekeepers like A. I. R. himself, and Dr. Miller, who have, perhaps, worn out several of their wives' dishpans in their early days of beekeeping in calling back runaway swarms that were nearly out of sight, should surely be able to give us some light on the subject. If bees could hear 40 years ago, they surely can do so yet. Who knows? I believe bees can and do hear.

Dakota, Ill.

A. A. Augenstein.

I should like to relate an experience we had two summers ago. There were a few half-grown pigs in a pen a few rods from an apiary of 200 colonies. Occasionally a pig would get out; and in catching and lifting him back over the fence there would be some good sharp squealing. Whenever this happened when the bees were flying well overhead, scores of them would come at us so furiously that we were obliged to hurry operations or take a severe stinging before we could get away. The bees would come for rods, fast and mad, directly for us. It was not the motions we made that caused it, for we tried it. It happened fully half a dozen times before we fixed the fence. Do not the bees hear the piping of young queens.

East Syracuse, N. Y.

F. W. Lesser.

A. I. Root revives the old question: "Can Bees Hear?" It seems to me that such a question could be easily answered by any apiculturist who has at one time or another noticed what happens when by accident a bee is pinched on top of the frames and in the vicinity of other bees. The injured bee gives a "war whoop," followed by an immediate rushing of bees to that spot. Could the bees have seen such an accident? No; nor could they have felt it. What then called them to the assistance of the injured member? Simply the sound of distress. There are numerous other bee behaviors that can be accounted for only by sound. For instance, how would the guards

at the entrance obtain help, if they could not make others hear and understand the vibrations of their wings? There is no more conclusive proof of the presence of a sense of hearing in bees than the fact that they can distinguish and will follow different sounds, unless it be the positive discovery of the ears themselves.

Lawrence F. Bellman.

Ft. Atkinson, Wis.

A Homemade Extractor.

In an old-fashioned milk-can cut a six-inch hole in the bottom.

To the edges of this attach with solder about an inch of the top part of the funnel. Then punch four holes in the lower edge of the funnel and attach a cheesecloth strainer. If the can is not deep enough to take the frames, attach a band of iron to the top. Next make a frame of wood and wire attached to the shaft and held in place at the bottom with a strip of iron with a hole in the center. In this frame the extracting-supers as well as section boxes slide in and



A homemade honey-extractor.

out easily. A couple of old gears will complete the outfit as shown in the picture. The old can was given to me. I had on hand the old pieces of iron, solder, etc., so the whole affair, including paint, cost but \$1.69.

The standard is simply but solidly built. Any size of dish may be used underneath by sliding a board thru the different cleats at the sides of the legs.

My honey crop totaled 226 pounds this season, about half of which was extracted.

Center Rutland, Vt.

R. L. Palmer.

Objects Strongly to That Treatment.

The article by J. F. Kight, appearing in the January issue,

raises a question that should be ventilated. There are altogether too many beekeepers who now try to cure American foul brood in that way. At the beginning of my bee-

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keeping career I spent two years with a man of world-wide reputation. His system of curing American foul brood was to move the colony with diseased cells to an out-apiary, called a hospital, and there cut out the cells as Mr. Kight advises. He never was free from disease during my stay with him. In some cases this treatment might be the means of curing the disease, in others it might not.

In another instance, I knew of 100 colonies of bees gaining access to a tank of diseased honey in the autumn after breeding had ceased. Following my advice, the owner examined the colonies frequently in the spring, and, whenever he found a cell of American foul brood, he cut it out and kept on watching to prevent the disease getting a start. Yet under even such favorable conditions as these, the beekeeper did not succeed in eradicating the disease by this method.

The trouble is, one rarely knows when and how the germs have been brought in. My practice has been to destroy every source of infection, and, whenever I have found the disease in one or two colonies in a large apiary of 100 or more, the bees have been brimstoned, the combs burned, and the hives disinfected. R. F. Holtermann.

Brantford, Ont.

On a Roof in Detroit.

This snap-shot shows one colony of bees on the roof above my home near the large Liberty (air-plane) Motor Co. I saw this was a good location, since the flight of the bees would be clear above the street traffic, and there is an abundance of flora in the adjacent fields. So I sent away for a colony. The hive arrived all right except for a couple of



Beekeeping on a roof in Detroit.

broken end-bars and a slight tear in the screen which let a few bees out. With the assistance of the neighbors I hoisted the colony to the roof by means of the clothes-line. At first I feared for the bees on account of the wet and cold, and also insuffi-

cient stores; but dandelions, followed by fruit bloom, saved them. They swarmed once, but I did not lose either the queen or the bees; and after I had cut out queen-cells and given ventilation they gave up swarming. They gathered about 140 pounds of surplus honey, mostly from white clover. In August, from sweet clover and wild flowers, they brought in enough for winter. I packed the hive in a box, surrounding it with newspapers and furniture packing, and placed it near a corner brick wall which serves as a windbreak.

Detroit, Mich.

Scott Mizenes.



A colony of Italian bee, that built their home in the open in Posey County, Ind. It was suspended among grapevines and houseweeds, and was half as large as a full-sized barrel. On Dec.-22, 1918, when this colony was put in winter quarters, it was very strong and had 50 lbs. of honey.

Big Results from Three Colonies.

This spring I started with three colonies. Six queens were ordered from the South to be shipped May 10. Before arrival one colony swarmed. Upon receipt of the queens the parent colony, as well as the two other colonies, was divided into three parts each. This gave me "the makings" of 10 colonies. Later another queen (not ordered) was received. So I robbed nuclei to start a nucleus. This gave me eleven "makings." All colonies are in ten-frame hives. I had no combs excepting those in the three original brood-chambers, they having been run for comb honey; but I used full sheets of foundation upstairs and

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down—rather hard on the nuclei, but it was the best I could do.

The crop was 564 pounds surplus, all taken from supers. The brood-chambers are packed solid with honey, and I have used no sugar whatever. By using sugar for wintering I could have taken another 100 pounds of honey from the brood-chamber; but instead I have saved 16 pounds of honey for possible spring use. (These are included in the 564 pounds.) I expect to make further increase in the spring, and find I have to "dig down" and get a honey-tank, uncapping-can, etc. Don't you think I did well with three colonies?

Edward M. Barteau.

Brookhaven, N. Y.



Combs, full of holes and rough, but taken from one of the record-producing colonies of E. S. Kinzie at Arlington, Calif.



For Watering Bees on Desert. In answer to the inquiry of W. E. Woodruff of Cottonwood,

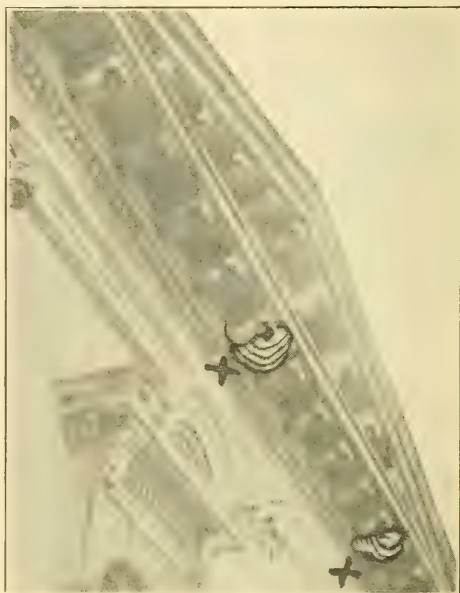
Ariz., as to a dependable contrivance for watering bees on the desert, I hereby wish to describe a device that will answer the requirements as stated and will be unfailing in its operation.

Take a barrel that is tight, place a faucet in the lower hole near the bottom. In the top of the barrel bore a hole large enough to take a fair-sized funnel. Make a bung that will fit this hole so as to be

perfectly tight. The spout of the faucet is to extend into a shallow pan of any dimensions to answer the respective requirements. A rack of lath or other material can be placed in the tray to prevent the drowning of bees. If lath are used, the spout of the faucet should be placed about one-quarter inch above the bottom of the pan. Turn off the faucet and fill the barrel with water to the top. Drive the bung in the top tight, open the faucet, and the water will run out until it is even with the opening of the faucet. As the water is used or falls below the spout, a small amount of air will pass into the barrel, allowing the corresponding amount of water to pass into the pan. A piece of pipe with an elbow on the end will answer as a faucet; but when the barrel is being filled the opening on the pipe will have to be plugged to prevent the water from running out as fast as poured in. If a barrel is not large enough, a tank of any size could be made and used in the same manner.

Albert G. Hoffman.

Buffalo, N. Y.



The Government extension men, while giving a course of instructions to beekeepers at Visalia, Calif., recently had their attention called to the two large colonies of bees that had built combs under the cornice of the court house about 60 feet from the ground. The combs are exposed the year round, and yet the colonies seem to prosper. One colony is a swarm of the other. The getting of the pictures, of which this is one, drew a large crowd, including the fire department and the sheriff, who had come not to arrest the trespassers but to assist in getting the pictures. The combs are shown above the crosses marked on the picture.

THE annual meeting of the Minnesota Beekeepers' Association, to have been held Jan. 29 and 30 at the West Hotel, Minneapolis, was postponed a second time on account of the flu epidemic. The regular Minnesota beekeepers' short course will not be held this winter, but the annual meeting of the association will still be held at a later date.

The beekeepers of Franklin Co., O., organized a county association on Jan. 10 at the Chamber of Commerce, Columbus. There are about a hundred live beekeepers in the capital county of Ohio.

The annual meeting of the Missouri Apicultural Society was held at Columbia, Jan. 21 to 24, during the State farmers' week. An excellent program was prepared; and the advance announcement spoke most hopefully of the beekeeping prospects in the State.

The Chicago-Northwestern Beekeepers' Association will hold its annual meeting jointly with the National Beekeepers' Association. Accordingly, the Northwestern's meet will consist of a morning and afternoon session, on Feb. 18, the National's first session coming on the evening of the 18th. The place of meeting is the LaSalle Hotel, Chicago. Speakers on the program are Dr. E. F. Phillips, Editor C. P. Dadant, Edward Heflinger, Jr., and Miss Iona Fowls.

At the annual convention of the Western New York Beekeepers' Association held at the Genesee Hotel, Buffalo, N. Y., Jan. 10, 11, James H. Strout, Lockport, was re-elected president, and Howard M. Myers, Ransomville, was re-elected secretary. There was an excellent attendance, and unusual interest was taken in the proceedings. An interesting and significant fact is that the Western New York Honey Producers' Association is now incorporated under the laws of New York.

The New York State College of Agriculture, in co-operation with the Bureau of Entomology of the U. S. Department of Agriculture, will conduct a six-day school for commercial beekeepers at Ithaca, N. Y., the week of Feb. 24. This course is practically the same as that which was given recently for three weeks in California by Dr. E. F. Phillips and his assistants. This school is in no sense a beekeepers' convention such as beekeepers ordinarily attend in winter time, but will be a systematic course in beekeeping, with emphasis placed on the fact that the primary part of this course will be to

JUST NEWS

Editors

train commercial beekeepers and not to make mere beekeepers. The tuition in the course is free to all residents of New York State. The course has been

carefully organized along the lines of the teaching given at the California courses during November and December that proved so highly successful. The school will be held in room 392, Robert Hall, Cornell University, the first session beginning Feb. 24 at 10 a. m. The names of instructors appearing on the program are Dr. E. F. Phillips, E. R. Root, Geo. H. Rea, Geo. S. Demuth, A. Gordon Dye, O. L. Hershiser, C. P. Dadant, J. G. Needham, and S. D. House.

The 16th annual convention of the Kansas State Beekeepers' Association was held Jan. 7 and 8 at the Chamber of Commerce, Topeka. An excellent program was sent out in handsomely printed form.

The annual meeting of the Pennsylvania State Beekeepers' Association was held at Harrisburg Jan. 23-24. An interesting program had been prepared, with Dr. H. A. Surface in charge as president.

W. A. Pryal, long a resident of Oakland, Cal., a widely known beekeeper, and one whom many readers of Gleanings will recall as a contributor to this journal, died Dec. 29 last. He was a man and beekeeper of exceptional ability and of the highest standing.

The first annual meeting of the Chenango Co., N. Y., Beekeepers' Society was held on Dec. 14 at the county court house, Norwich. There was a large attendance of beekeepers from Chenango and adjacent counties, and an excellent program was carried out. The officers for the coming year are: O. W. Bedell, Earlville, President, and L. R. Gorton, Norwich, Secretary-treasurer.

The 49th annual convention of the National Beekeepers' Association will be held at Hotel LaSalle, Chicago, Feb. 18-20. Among the names appearing on the program are those of Prof. Francis Jager, Collin C. Campbell, E. D. Townsend, Dr. E. F. Phillips, Prof. F. Eric Millan, Charles B. Justice, Kenneth Hawkins, Prof. H. F. Wilson, C. P. Dadant, Prof. E. G. Baldwin, and E. R. Root (if not detained in California). Every wide-awake, forward-looking beekeeper in the United States is urged to attend.

QUESTIONS.—

(1) What has become of the famous Alexander plan for a plurality of queens in one hive? Was Mr. Alexander the only one who ever made a success of it, and is it entirely abandoned?

(2) Ten queens in 10 hives each with one or two pounds of bees will develop very slowly, owing to a lack of bees to take care of the brood. These same 10 queens in one colony of 10 to 20 pounds of bees will each have plenty of bees and heat enough to cause them to commence laying eggs at 100 per cent rate. Such a colony after three weeks ought to produce frames of hatching brood every two days, thus giving one full-colony increase every other day. In other words, one strong colony on May 1, provided with 10 good queens, ought to produce 15 good colonies in each of the months of June, July, and August, and each of these colonies would have enough time to grow into excellent colonies for wintering, the cost of these 45 colonies being only the price of 10 queens in May and some feed. Will this theory come true? (3) If several queens in the same hive (without excluders) are tolerated only during the honey flow, will they be tolerated if the colony is fed daily with a thin sugar syrup? Emil Wyldert.

New Jersey.

Answers.—(1 and 2) By a little calculation it will readily be seen that theoretically 15 good colonies could be built up in 30 days, as you suggest, using only 10 queens and a large quantity of feed. However, in actual practice we find queens and bees refuse to behave with mathematical exactness. Moreover, a plurality of queens in one hive is not successful. At the time Alexander brought this plan before the beekeepers, many tried it, but the method was dropped in a very short time. At the present date, we believe the only way it is being tried is simply to use two queens in the same hive during the summer, usually having two queen-excluders intervening between the chambers containing the different queens, it generally being found, if only one excluder intervenes, that sooner or later one of the queens will disappear. (3) We see no reason why this might not be done immediately following the honey flow, and yet we have never tried the plan; in fact, except in cases of supersedure, we have never been successful in having more than one queen in the same compartment.

Question.—An old box-hive beekeeper told me to wash the inside of the hive with salt and water, and the bees would not swarm out, but stay every time. Do you know if this is true? Ernest Peterson.

Illinois.

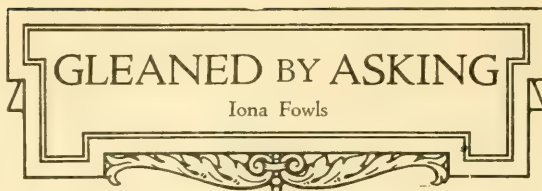
Answer.—No. We wish it were.

Questions.—(1) How many colonies would it be best to keep for about 50 acres of alsike clover, provided there is a good stand of clover, no other honey plants in the vicinity, and the weather and moisture are suitable? (2) Why is alsike cut for seed the first cutting? Isn't there as much seed in the second cutting? (3) Is alsike clover the best yielder of all the clovers? If not the best, what is better?

Illinois.

Walter R. Suhre.

Answers.—(1) In a good locality, during



a good season, 50 acres of alsike clover would probably supply considerable surplus for 20 colonies of bees. This would, of course, vary from year to

year, and it is therefore difficult to give a definite answer. (2) Red clover is fertilized to a great extent by bumblebees since the corolla tubes are so long that honeybees are generally unable to reach the nectar. Since only the queen bumblebee lives over, there is no chance for fertilization of the first cutting. Alsike, being fertilized by bees, bears seed for the first cutting and accordingly is probably exhausted by the second growth so that it does not mature properly. (3) Altho white sweet clover and alfalfa are very good yielders, we know of none more reliable than alsike.

Question.—Will it be safe to feed bees with comb honey which has been treated with carbon bisulphide to kill moth larvæ and eggs, after such combs have been aired 10 days or two weeks?

Nebraska.

C. W. Farrington.

Answer.—The combs of honey will be perfectly all right to feed the bees; in fact, the honey may be eaten by human beings without any danger of poisoning.

Question.—A beekeeper in Minnesota told me that if a hot uncapping knife is used, the ends of the cells are so singed or melted that bees do not like to lengthen or build them up again. Is there anything to this?

J. W. Beckley.

Oregon.

Answer.—No, not in our experience.

Question.—Will you please tell me what preservative to put in honey to prevent it from fermenting?

British Honduras.

Donald A. Spratt.

Answer.—In order to prevent honey from fermenting it should be left on the hive until it is thoroly ripened. As the bees ripen the honey it becomes thicker and thicker, and is thus less liable to fermentation. Honey should be kept in a warm dry place. The best temperature is 70 to 90 degrees Fahr. No preservative should be put in honey in order to keep it. Even if such a chemical could be found which would not injure the flavor of the honey, the beekeeper would still be prevented from its use by the pure food law. Well-ripened honey in a place such as we have indicated ought to keep for years.

Question.—I had been planning a winter case that would hold four hives, giving one entrance on each side, when I found in Gleanings, page 598, almost the identical thing I had been planning. The vacant space at the center I do not like, but see no way to prevent it and still have one entrance on each side. Mr. Foster gives the measurement as 48 inches by 49½. It seems to me this would cause a great waste of lumber, but by cutting all pieces 48 inches and nailing up one end in, and the other out, as you would in putting in inside forms for concrete work, you would have a box 47½ inches square, provided your lumber was

$\frac{7}{8}$ inch. This would give $5\frac{1}{2}$ inches of packing on all sides.
A. W. Lindsay.
Michigan.

Answer.—Apparently you have misunderstood the description of Wesley Foster's case. We believe he uses all 48-inch lumber $\frac{3}{4}$ inch in thickness. The dimensions of $49\frac{1}{2}$ by 48 are the outside dimensions, and the reason that the two sides are $1\frac{1}{2}$ inches longer than the ends, is because the end-pieces are nailed on to the ends of the side-pieces. The thickness of the $\frac{3}{4}$ -inch lumber at each end of the side boards, would therefore make the sides $1\frac{1}{2}$ inches longer than the ends. If the corners were lapped serially, as we understand you to suggest, the outside dimensions of the case would be $48\frac{3}{4} \times 48\frac{3}{4}$, if this same $\frac{3}{4}$ -inch lumber were used. However, if $\frac{1}{2}$ -inch lumber were used and half the boards cut $1\frac{1}{2}$ inches shorter than the other, it would be possible to have a perfectly square case if the corners were lapped as in Wesley Foster's case. There would, therefore, be no material difference in the price of these three cases, and the manner of matching the corners would simply be a question of personal preference.

Question.—What do you think of the following plan of wintering, which I am now trying out? Take ordinary 10-frame Langstroth hives, fasten the bottom-board and roof securely, close the summer entrance, and turn the hive on end, the bottom being to the front, then bore a 1-inch hole at the bottom of the bottom-board for a winter entrance. Secure the hives with props, so that they cannot blow over, and then leave without any other protection.
Washington D. Keyes.

Pennsylvania.

Answer.—This plan has been suggested by several other beekeepers, who intend trying this method of wintering with double-walled hives. The part of the hive that is the top during the summer would need some extra packing, and in some cases the bottom also would need more protection. This could, perhaps, be arranged by means of a large telescope cover, but it is possible that the cost of such a cover might make the regular Demuth style of wintering preferable. We shall be glad to receive a report from you next spring.

Question.—How can I fasten foundation into extracting frames?
Minnesota.
Martin Seipp.

Answer.—To fasten foundation into extracting frames, the frame should be held with the bottom-bar up, and leaning out a little way from the operator. The triangular piece may be removed from the top-bar and the sheet of foundation then laid against the shoulder in the bar and resting against the wire. The piece of wood removed is then laid against the edge of the foundation where it comes in contact with the top-bar, and is nailed in place with two or three small nails. After this the frame should be placed over a block just the right size to fit into the frame, the foundation being next the block and the wires on top. The wires may then be imbedded with a spur wire imbedder, using only just enough pres-

sure to imbed the wire in the foundation, without cutting thru the foundation. If the wires cut the foundation at any place, the bees will probably remove a part of the foundation there and replace with drone comb.

Question.—Do you consider the $\frac{7}{8}$ -inch space under the brood-frames too much? I find them building burr-combs from the bottom-bars to the hive bottom.
A. W. Lindsay.
Michigan.

Answer.—We do not think $\frac{7}{8}$ -inch space any too much under the brood-frame, and as far as their building burr-combs from the bottom-bars to the hive bottom is concerned, this would not trouble us. Of course, if such burr-combs became so high that there was danger of crushing bees when returning the combs to the hives, it would be necessary in those rare cases to scrape the bottom-board. However, we do not think you will have any trouble from this cause.

Question.—Please tell the surest and quickest way to requeen a colony of bees having laying workers.
E. D. Howell.
New York.

Answer.—In the September issue of *Gleanings*, under the department "Gleaned by Asking," you will find a method given for introducing a queen to a laying-worker colony. In addition to this we might say that some good beekeepers simply exchange places of the laying-worker colony and some other good strong colony, and then requeen in the usual way.

Question.—We are just beginning in beekeeping, but plan to branch out until we reach a full 50-hive apiary. We are in a very fine country for bee pasture. It could hardly be better. Would you advise us to go in for extracted honey or for comb honey?
Montana.
W. A. Petzoldt.

Answer.—Your locality is more suitable for extracted honey than for comb on account of the cool nights. During the night the bees build a great deal of their comb; and unless the supers are quite warm the bees will not go into them to carry on this work.

ANSWER BY MEL PRITCHARD.

Question.—I am a beginner, and it is my object to locate near Fort Myers, Fla., and build up an apiary. I understand that is a good location, but would like your opinion concerning it.
Oregon.
A. P. Applegate.

Answer.—Three years ago I spent several days with the beekeepers at Ft. Myers, and was not very favorably impressed with that region as a location for honey production. I found most of the beekeepers were rather discouraged. The cattlemen burn over a great deal of the land during the winter in order to improve the spring pasture, and this destroys the bloom of the saw palmetto, which is one of the main honey plants of that locality. If you are able to locate where there is plenty of tupelo, you can be reasonably sure of a honey flow from it. This, together with orange and bloom that is general over the State, would enable you to get a good honey crop.

ONE of California's daily newspapers reports the following conversation as having taken place between Charles Foss, a beekeeper with 8,000 pounds of honey to sell, and a honey buyer who came to his door to purchase his crop: "You are buying honey to sell it at an exorbitant price. I am going to sell mine at six cents a pound to persons who need it and can not pay your price. God gave us the bee and He charges us no tax on it. He gave us the flowers from which the bee draws its honey and they cost us nothing. Why, when the world is overwhelmed with suffering, should some men profiteer at the expense of those who suffer most? Some day I hope to look in the face of Him who gave us the bee and the flowers, but I could never look Him squarely in the eye if I had made a single penny out of a fellow creature's stress." The newspaper adds that Foss sold his entire crop at the price of six cents when he could have got 22 cents, selling it to people near his own home who consumed it themselves.

"We are reading with great interest on this side your revelations about large hives. Somewhere about 1860 a certain Mr. Woodbury made a 10-frame hive, 14½ inches square and 9 inches deep, and we have never got away from that hive. The result of confining brood to such a small space for generations has been to develop such poor queens that many now teach that the 10-frame British hive can not be bettered. Those who import prolific foreign queens and try to keep them laying on 10 British combs find that those bees (Italians, Americans, etc.) do nothing but swarm. So back we go to our degenerate British bee. Fortunately, Isle of Wight disease is doing something to exterminate the unfit—both bees and beekeepers."—John Anderson, Lecturer in Beekeeping, The North of Scotland College of Agriculture, Aberdeen, Scotland.

"I have been troubled with bronchitis for some years, and last winter I had the grip which left me in bad shape. So last spring I began taking a teaspoonful of extracted honey every night just before going to bed, and I do not have any more trouble from these ills."—H. Galloway, Multnomah County, Ore.

"The season I have just finished has been the best I have ever experienced in my 30 years of beekeeping. My honey season started about the last of September, 1917, and finished about the last of April, 1918. The drones were flying and swarms were flying all thru this period—in fact, drones were flying as late as midwinter, which with us is June 21. This was two months later than

BEES, MEN AND THINGS

(You may find it here)

in a normal season. I started last September with 73 colonies and finished with 141 and produced 33,420 pounds of extracted honey, all of good quality,

an average of 237 pounds per colony. The price here ranges from 8 to 12 cents per pound, packed ready for export. Beeswax sold from 36 to 48 cents a pound and for a short time was up to 60 cents a pound."—A. P. Haberecht, Henty, N. S. W., July 17, 1918.

"I before stated some of the advantages of large cubical ('square') hives. I will take 10 hives of 2,250 square inches of comb capacity and go to any man's locality and produce more honey with less expense than he can with any hive smaller than that size."—T. K. Massie, Mercer County, W. Va.

"I moved my bees to winter quarters after Dec. 1, but did not cover the front of the hive as the weather was mild, and the next day and for several days thereafter saw drones flying in and out. Never heard of drones so late in the season before."—C. A. Kinsey, Gallatin County, Mont.

"We had a dandy year and I had several of those 'skyscrapers.' I allow no swarming, but use the double brood-chamber of 10 frames each, raising the first way above the second. It is a great system."—C. L. Rion, King County, Wash.

"There are now in this province of Ontario over 8,000 beekeepers. Tho the precise figures are not available, it is estimated that the product this year amounted to about 5,000,000 pounds."—The Toronto Globe.

"I will be 81 years old Jan. 6 and had concluded to quit the bee business and had about sold out; but I think now I shall stock up some in the spring."—G. T. Willis, Vermilion County, Ills.

"In 1916 I sold about \$300 worth of honey from 12 colonies by spring count. I am a farmer way up in 'that blustery Nebraska,' too."—G. L. Mills, Merriek County, Nebr.

"Very mild winter here on the Kansas-Nebraska line, and bees are wintering well with some outside protection."—Ralph Livers, Nuckolls County, Nebr.

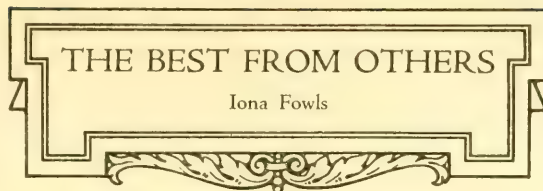
"Today, Dec. 19, bees are gathering some pollen off the dandelion. Did you ever hear of the like at this time of the year?"—Wm. Kemp, Shelby County, Ind.

"An open winter here. Prospects are good for honey crop next year."—D. F. Rankin, Jackson County, Ind.

"The prospects for clover for 1919 look good."—G. W. Haines, Fulton County, N. Y.

UNDER
"Minor
Tools and
Appliances of
the Modern Api-
ary," by D. M.
Macdonald, in
the December
British Bee
Journal, we

find the following: "A small rake, called a 'queen-persuader,' is periodically run over the surface of sealed comb every time the hives are examined in the spring and early summer. In this way the bees are given the smell and taste of honey. The bees, transferring this to the neighborhood of the brood, feed the queen, and thus induce her not only to start laying, but to keep it up even when nothing is coming in from the fields." [In our basswood apiary we have used such a tool for getting combs in the right condition for shipping one-frame nuclei.]



Iona Fowls

on May 10, and again on June 2; also on July 12 the first division cast a swarm, so that the one colony increased to four and also produced 610 pounds of honey.

Mr. Greiner says the secret of his heavy yields is leaving the brood-chambers undisturbed during the honey flow. Unless absolutely necessary he never opens the brood-chamber from the time spring management is over until the following spring. [In the phrase "Unless absolutely necessary," Mr. Griener doubtless has in mind the need of occasional inspection for disease. We are certain he would consider this essential.]

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INSPECTION WORK IN TEXAS.

Organization for bee control in Texas excels that of any other State, says Frank C. Pellett, in the January American Bee Journal. The work of disease-eradication has been placed in the hands of the State Entomologist, Prof. F. B. Paddock, who has appointed a chief inspector and 40 local inspectors. In this work Mr. Paddock has unlimited authority in making and enforcing all necessary regulations. In any locality where inspection is to be undertaken, he believes co-operation and organization imperative, and therefore requires county organizations to name two or more men who would be acceptable to the county. From these the selection is made. When cleaning up a locality the inspectors begin at the center of infection and work outward. They are required to examine every comb in every apiary inspected, and in case of a queen-rearing yard, every colony within a radius of a mile is also examined before a certificate is granted. [Let us hope this good work will spread to other States also. The present inspection work in many places is deplorable.]

* * *

LICENSING BEEKEEPERS.

European foul brood has become so prevalent in British Columbia that a demand has arisen that beekeepers be licensed. In the December Canadian Horticulturist and Beekeeper is a proposed amendment to the Foul-brood Act, which, it is hoped, will be passed at the next session of the Provincial legislature. It would require all beekeepers to register annually and pay according to the number of colonies, with \$5.00 for the maximum. The Minister would have power to refuse registration to any beekeeper whose methods he had grounds for believing a menace to good beekeeping.

* * *

HAVE BEES A SENSE OF DIRECTION!

The sense of direction is discussed in the January American Bee Journal by Prof. Emile Jung in a clipping taken originally

INHERITANCE THRU DRONES.

Certain traits are more readily transmitted by drones than queens, claims C. P. Dadant, in the January American Bee Journal. He recalls that at the International Congress of Beekeepers held at Paris in 1900 the assertion was made that gentleness or irritability is transmitted thru the drones; that a black queen mated to an Italian drone will have progeny of a gentle disposition, while an Italian queen mated with a black drone will produce bees with the characteristic temper of the blacks. Mr. Dadant says he has since that time proved the theory true, having corroborated it in his own experience.

* * *

WRESTING SUCCESS FROM FAILURE.

Stick-to-it-iveness is necessary for success with bees, claims D. Angus Lambeth in the December Canadian Horticulturist and Beekeeper. He believes one should have the staying qualities of a Jack Johnson, so that when he gets a hard blow in the first or fifth round he comes up smiling, refusing to "take the count." Among the many successful beekeepers Mr. Lambeth has known, he says there is not one who has not received at some time or other bad blows and reverses sufficient to put him out of business, but each time he came back "wresting success from grim failure just because they knew how to hang on."

A good illustration of this is found in an article by G. C. Greiner, appearing in the January American Bee Journal. In the spring he found himself practically destitute of bees, from the ravages of foul brood. He straightway purchased and built up in preparation for the coming flow. The result was an average of 280 pounds of surplus per colony, one-third of the honey being comb. One colony made a most remarkable record. Early in the spring it was of medium size, but was large enough to divide

from the "Echo des Alpes." He has been trying out Fabre's experiments along this line, but has drawn a somewhat different inference. A few bees were marked, put in paper bags, and liberated at different distances from their hives. At about half a mile distant the bees all returned; at two miles a small number were lost; at four miles 17 out of 20 returned; and at eight miles none returned. Professor Jung believes this indicates no sixth sense of direction, but that the bees return only when they are able to find landmarks which they recognize. This seems borne out by the fact that of bees liberated two miles out in the lake none returned.

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VALUE OF DOUBLE-WALLED HIVES.

Double-walled hives have been quite neglected in recent discussions on wintering, asserts W. A. Chrysler in the December Canadian Horticulturist and Beekeeper. The main argument against these hives, he says, is their cost, weight in handling, and greater liability to cause poor wintering. The first point rather fades away when we consider the cost of a winter case. In regard to weight, he says the double-walled hive does not need to be lifted; but he estimates that packing and unpacking the single-walled hives in an apiary of 100 colonies would require 14,000 pounds of lifting. In refutation of the third point he says that, after an experience of 30 years with various kinds of wintering (except cellar wintering), he has found the double-walled hives much the safest and most practical. He also adds that 28 years ago he visited an apiary of 200 colonies, all in double-walled hives. This fall he again visited the same yard and found the owner still as well pleased as ever with this kind of wintering. [In even as severe a winter as last, one can winter several hundred colonies in double-walled hives with less than one per cent loss if he knows how.]

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CHAMPION OF SMALL HIVE.

Large hives are commented on by Miss Emma M. Wilson in the January American Bee Journal. She says that, tho Dr. Miller, if he were beginning again, would have a larger hive than the eight-frame, his helper does not agree with him on this point, since the eight-frame is much easier to handle; and, as for the danger of starving in winter, she says those women not willing to give the necessary attention in the fall should either use larger hives or let bees alone.

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LOCATIONS IN CALIFORNIA.

Forest-reserve locations in California have been investigated, and range for thousands of colonies found, according to the December Western Honeybee. This work has been done by the United States Bureau of Entomology and Forest Reserve. The best of the localities that are at all accessible are already occupied; but there will be many

other good ones available as soon as facilities can be provided for reaching them. These ranges are to be classified according to their value as bee-pasturage, and the licenses will be so granted that beekeepers will be able to locate no closer to each other than three miles. In some other parts of California that are already overcrowded there has also been some talk of requesting the legislature to place a limit to the number of apiaries that may be established within a certain space.

* * *

LIMITING BOUNDARIES.

Among resolutions lately passed by the Auckland branch of the National Beekeepers' Association may be found in the November New Zealand Beekeepers' Journal one recommending that the Government limit boundaries so as to prevent overlapping of beekeepers' territory, and that the law forbid the removal of bees from one locality to another unless the proposed location be certified by the Government inspector to be suitable for the purpose.

* * *

STEEL DRUMS FOR CONTAINERS.

An effort to secure more dependable containers for shipping extracted honey is mentioned in the December Western Honeybee. Fifteen-gallon steel drums are proposed, and a rate of \$1.12½ per 100 pounds suggested as a carload minimum of 50,000 pounds. These drums are practically indestructible and may be handled with ease and safety.

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PROPHECY ON PRICES.

"We do not see how prices can drop very much before the next crop comes on, as there is such a small amount left in the hands of the producer. Our idea now is that the market will stiffen just as soon as shipping space becomes a little more easily available."—M. G. Dadant, January American Bee Journal.

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GIVING BEES TO SOLDIERS.

Maimed soldiers and sailors are each offered a colony of bees and hive complete by W. Ion in the British Bee Journal for Nov. 21. He says, if thruout the United Kingdom 999 other beekeepers would do the same, that the returning soldier beekeepers could immediately restart in beekeeping.

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ANOTHER PROPHECY ON PRICES.

Honey, being a luxury, may be one of the first food products to drop in price, says the editor of the Domestic Beekeeper in the December issue, yet he does not look for much of any reduction from present prices for a year or two at least.

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BEEES ON SHARES.

Keeping bees on shares, J. B. Lundie, in the Australian Beekeeper, considers to be worth more than is usually paid. He thinks such work should command as much as two-thirds of the honey and wax.

WITH this number, we again start a series of talks explaining just how any one may begin beekeeping, how he may purchase his bees,

what supplies he will need, and exactly what he should do each month in order to obtain the best results from his colonies.

In beekeeping literature one will find quite a confusing conflict of opinion concerning almost every method of beekeeping. We do not purpose leading the beginner thru any such bewildering maze, but shall attempt to tell him one good way of doing each thing necessary to success.

Why Begin?

That there will be a large army of beginners this year is certain. Never before has beekeeping been so popular as now. We could hardly expect honey to continue at high war prices, but the greatly increased use of honey convinces many that the price will not fall back to its old level.

Still, too many are turning to beekeeping, the beginner need not fear insufficient nectar for the increased number of colonies, as a recent Government bulletin claims the bees are now gathering less than 3 per cent of the amount of nectar available. Nor is there any danger of overproduction, since people are fast learning that honey is a more healthful sweet than sugar and are accordingly using more honey. At present we use only 3 per cent as much honey as sugar, so it is evident that a much greater amount could easily be used if available. There is, therefore, no doubt that it will pay to join the ranks of the producers.

Those Who Will Succeed.

Years ago, those who would keep bees were obliged to grope about in the dark, and many found experience so dear that no profits remained. Today, with our modern apparatus, and our books and magazines explaining the best practices of the best beekeepers for years past, any intelligent, wide-awake person in a suitable locality could hardly do otherwise than succeed. The beginners who will develop into the best beekeepers are those who are enthusiastic enough to study the subject well, to take one or more current bee journals, and visit apiaries of up-to-date beekeepers. They should not have so exalted an opinion of their own skill that they are unable to accept suggestions from those of wider experience. Yet at the same time they should not follow others blindly but should think for themselves. Above all else the beekeeper should have a real love for his work, a determined perseverance in the face of obstacles, and a firm conviction that beekeeping in the long run pays and pays well.

Profit from Others' Experience.

As we mentally view this large class of

TALKS TO BEGINNERS

By Iona Fowls

beginners, we find ourselves wondering how the end of the year will find them, how many bad mistakes will have been made, what per cent will have

been successful, and what per cent failures. From our correspondence, we have kept a pretty close tab on the beginners. Perhaps this year's class might be saved certain mistakes by learning wherein some of last year's class failed.

One person started with vim and vigor but with too little protection from stings, and, therefore, after getting a few stings, was content to leave the colonies entirely to their own devices. At the end of the season, he wrote us a tale of woe because his bees had stored nothing.

Another read volumes and volumes on beekeeping, but thruout the summer never opened a beehive, nor cut out a queen-cell, nor added a super, nor hived a swarm without first discussing it with his beekeeper friend. (We shall have to admit that this beginner made money on his bees this year, but we doubt if he will continue to do so.)

In another instance the owner did not purchase suitable supplies, and her make-shifts caused such crooked combs that she found it impossible to remove them and, therefore allowed swarms, after-swarms, and more after-swarms. And she couldn't see what under the sun was the matter with her bees, for they were nice Italians, and she had tried the let-alone-plan on them and it simply didn't work at all.

One unusually bright man learned so much in one short month that he felt impelled to visit the neighboring beekeepers all around, not for advice, no, bless you! but to point out wherein all their methods were entirely wrong. Many and varied were the methods he practiced and taught, but few were the pounds he garnered.

It seems hardly fair to tell of failures and not of successes, but really our mails were full of the successes of beginners, and in a number of instances those with a great enthusiasm but practically no experience for outstripped, in average crop per colony, their more experienced neighbors who counted their colonies by the hundreds.

Our Information Bureau.

In order to prevent avoidable mistakes, we ask all our beginners to write directly to us concerning any questions on beekeeping that may chance to arise. We hope our readers will take advantage of this opportunity as we have an information department designed especially for their needs. Sometimes we run across such questions as the following:

"I took my boxes of honey and left them standing on end to get the bees out. They

got out all right, but so did the honey. What was the matter?"

"I have a good colony of bees, but it's all wormy—hundreds of little white worms curled up in the bottoms of the cells. How can I kill them?"

"There is something about supplies as listed in bee-supply catalogs that I cannot, as yet, make out. It is 1 NP, 1 KD, and 5 KD. As 1 KD is always cheaper than 1 NP, I guess that it is of inferior quality. Am I in the right?"

"Could I winter my bees in a beehive my father made? It is big enough to hold eleven bees."

"Gleanings says, to prevent swarming, empty supers should be kept above the brood-chamber. I tried this, but the bees put honey in them every time. What shall I do? I am trying burlap between supers and brood-chambers now. Maybe this will work better."

Now we hope to be forgiven for smiling over a few of these, when we frankly admit that if we were to change occupations with the writers of these same letters, we know our questions would be quite as unusual as these mentioned. We will go further than this and say that in the same letter that rouses our mirth and from the same beginner who claims to know nothing about bees, we sometimes learn something decidedly worth while. His brand-new, unusual way of looking at an old truth sometimes throws an entirely new light upon it. Because of the assistance we are able to give, and also because of the help we ourselves receive, we sincerely welcome all letters of inquiry.

Arrange for Purchase of Bees.

After fully deciding on entering beekeeping, about the first step should be to make some definite arrangement for purchasing bees, to be delivered at the coming of settled warm weather, for one would hardly care to invest in beekeeping supplies before making certain the bees would be available at the desired time.

The very best way to get bees is to purchase them from a reliable bee-breeder or from some beekeeper near home, and to buy entire colonies in good standard hives.

If such are not obtainable, good colonies in dilapidated or poorly constructed hives may sometimes be purchased at a very low price from farmers in the vicinity. This would be a good proposition for an experienced beekeeper, but might prove rather troublesome for a beginner, since the bees would have to be transferred, that is, taken out of the old hive and placed in a new one some time during fruit bloom, which process will be described in a later issue.

Again, one may oftentimes secure the very best of colonies at a low price by leaving hives containing necessary fixtures with some farmer-beekeeper, with the understanding that whenever the bees swarm, the farmer will hive such swarms in these hives and keep them for the beginner until

he finds time to take them home. Yet in this case the farmer's colonies might not swarm early enough, and the beginner, therefore, not obtain his bees soon enough to start beekeeping at the first of the season.

However the bees are purchased, it is well to have them first inspected by a good beekeeper, in order to be certain the colonies are strong, in good condition, and not diseased.

Besides buying entire colonies it is also possible to purchase nuclei (small colonies) on combs, but, on account of the danger of such combs being infected with disease germs, we consider it a safer investment to buy bees in combless packages, which may now be sent by express or parcel post. When buying nuclei a queen should be purchased with each and introduced (that is, put with the bees) according to the directions which accompany her. Directions also accompany each nucleus, explaining just how the bees may be moved from the box to their new hive, and how fed until they build up into a good colony, which a two- or three-pound package would probably do in six or eight weeks. If a nucleus is purchased after the first main honey flow, they may, by feeding, be built up into good colonies by fall; but, unless there should be an unusually good fall flow, they would not be apt to store much surplus honey (honey in excess of their winter needs).

Unless one could obtain one entire colony having a number of frames of brood (unhatched bees), so that one frame of brood could be given each nucleus, we would hardly advise buying nuclei, since it would take them so long to build up. The full colonies are much more desirable even at the higher price.

Discussion of Next Issue.

After one has investigated the matter and made certain he can obtain the bees when he gets ready to buy, the next step is the purchasing of supplies, which will be discussed in the next issue.

Supplementing These Articles.

Since the procedure to be followed each month differs in the West, North, and South, it is quite obvious that, unless these talks are so general as to rob them of much of their value, they could not possibly apply each month to conditions in all parts of the United States the following month. As far as possible, however, we shall speak of seasons rather than actual months, and shall also supplement these talks by referring the beginner to other articles in the same issue. Some of these references will point out the need of different treatment in different parts of the country, while some will give the experiences and successes of other beginners. This month we refer the beginner to the Oklahoma Boys and Girls' Club (page 82), how fast to increase (page 91), beginners in Florida (page 97), beekeeping on a roof (page 99), "Big Results from Three Colonies" (page 99), and "Wrestling Success from Failure" (page 105).

THE parable that contains our first text has sometimes been called "the parable of the rich fool." As a general rule all mankind agree that it is a good thing to make provision for a rainy day. Every man should make it his business to provide for himself, his

wife, and for his household. In fact, we are in the habit of thinking this is the first and highest obligation that rests upon our shoulders; but evidently the dear Savior did not consider it as the most important thing. Humanity would naturally inquire, "Well, what is a fellow to do if he is not to provide first for the needs of his household for the coming winter?" Our second text answers the question. "Seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you." Well do I remember the time when I first discovered this precious text. I had, perhaps, seen it in my childhood, and very likely repeated it in Sunday-school; but I did not think or consider what it meant until I had grown up to manhood. May God forgive me for those selfish years when I had little in mind but to make money and more money.

The question naturally arises, "What did our Savior mean by the expression, 'the kingdom of God, and his righteousness'?" Where is God's kingdom? On this 11th day of October, 1918, the whole wide world is getting a better glimpse of *man's* kingdom, or a *man-made* kingdom, than ever the world had before. God forbid that there should ever be again, in the history of the world, another kingdom like that of *Germany* at the present day. Man's kingdom is a selfish one—all selfish. The kaiser is held up before us every day just now as an instance of the most awful kingdom the world has ever seen, and it is fast being set aside. God's kingdom, or something like it, and his righteousness, are to take the place of such a kingdom as *Germany* represents. When the United States first entered the war *Germany* tried to persuade us that this nation was just after "more territory," like *Germany* and all the rest of the world. In vain did our good President and the heads of our nation

OUR HOMES

A. I. ROOT

Soul, thou hast much goods laid up for many years; take thine ease; eat, drink, and be merry.
—LUKE 12:19.

Seek ye first the kingdom of God, and his righteousness; and all these things shall be added unto you.—MATT. 6:33.

Love ye your enemies and do good, and lend, hoping for nothing again.—LUKE 6:35.

declare we did not want more territory — especially more territory gained by bloodshed. If our nation could gain more territory by fair and satisfactory purchase, as in the case of Alaska from Russia and the Danish West Indies from Denmark, it would be all

right, but not right otherwise; and the world has been watching our nation to see if we act as we talk.

Our third text reads, "Do good, and lend, hoping for nothing again." I think that, when I first got hold of that precious promise or command, I gave a shout. I read it to my mother; and the readers of GLEANINGS of 45 years ago will recall some of the *experiments* I made to test its truthfulness. I sent GLEANINGS to missionaries free of charge, and many copies of it are still going to them. I know what the postal administration says just now about cutting off complimentary copies. But the copies that go to missionaries are at present paid for just the same as all others; but the *missionaries* did not pay it. You will remember I told our clerks years ago, when even postage stamps were scarce in our little printing-office, that the great Father above would furnish the stamps to pay the postage on our journals to the remotest missionaries on the face of the earth; and the stamps have been forthcoming during these past forty years and more.

It just begins to be plain to me that this little text, "do good and lend, hoping for nothing again," may apply to nations as well as to individuals. There has been quite a little criticism from certain quarters because the United States did not keep out of the war; and I suppose that every one of you knows that our nation had no selfish motive in becoming involved as she is now. It was really to "do good and lend," that prompted America to do good to other nations, not only to France and England, but the whole wide world. How much do you suppose the United States has "*lent*"? My stenographer and lifelong friend, W. P. Root, says the amount lent to the allies up to Oct. 21, 1918, was \$7,520,476,666—an amount of money more

than double our entire national indebtedness at the close of our own four years of war. How is that for lending? And the amount loaned by *individual* Americans is reckoned by the hundreds of millions. Did the world before ever hear of such a thing? And the glorious part of it is that our nation did it exactly in the spirit of that wonderful text, collecting it all from our own people, "hoping for nothing again."

One of the conditions just *now* imposed on Germany is that the great seas—God's great national highways—shall be open to all the nations of the world. It is the most gigantic undertaking the world ever saw or heard of. Nothing has ever transpired that can compare with it, even in the smallest degree. Our second text will come in right here also. America has been truly seeking the kingdom of God and his righteousness; and God's coming kingdom begins to be visible here and there all over the world. And one of the greatest glimpses comes with the abolishment of the liquor-traffic. While I write, the saloons are going out of business by the hundreds and thousands; and they are giving it up good-naturedly, without any hostile feelings toward the new ordinances or toward 'us fanatics' as we were called a short time ago. A new heaven and a new earth seem ready to be ushered in. Of course the cost was awful; but the great God above seems to have decided that nothing short of such a chastisement would bring about this great reform.

On the heels of the abolishment of the liquor-traffic comes the investigation in regard to houses of ill-fame. Our great cities, one after another, are instituting a crusade or housecleaning; and this terrible tramping under foot of God's holy command, "Thou shalt not commit adultery," seems to be yielding its awful punishment. Men who are afflicted with these unmentionable diseases can not fight; and I might almost say they can not be cured. They and their companions in crime are to be either done away with or made over; and, finally, in this new kingdom of God that is being ushered in, we are to have better babies. Their mothers are to be better cared for before and after the babies are born. See what is said about the babies in our November issue.

Well, ever since GLEANINGS was started I have had some rare enjoyment in following out that injunction, "Do good, and lend." When I got hold of that new annual, white sweet clover, I felt it would do lots of good to send the seed free of charge to the readers of GLEANINGS. Just as soon as the seed was mature enough to be gath-

ered, I so announced it in our October issue; and before I had reason to suppose the journal had reached our readers calls came for a little pinch of the seed, and I really felt happy in filling the orders. *An unexpected thing made me feel still happier. Almost every letter asking for seed had a kind word in it; and some of them mentioned the enjoyment they had received from the seeds I had sent them free of charge in past years; and while these good friends were writing me they told me some of their troubles or asked my advice in regard to some way they had planned for investing their money. As they sent a directed stamped envelope for reply I could easily offer a little word of counsel, and especially with the aid of the efficient stenographers here in my Medina home.

Now, it is not always money that we may do good with, and lend. Every one of us has opportunities every day of our life to lend a helping hand. We can lend our tools—yes, let us keep on lending, even if it does sometimes make us trouble. Lend to your poor unfortunate neighbor. If he is young and inexperienced, you can, perhaps, show him a better way of doing his work. When you happen to have more fruit or vegetables than you really need, "do good and lend, hoping for nothing again."

For fear you may find fault for my frequent repetition of this beautiful text, I want to tell you that in the years that are past these precious texts have become music to my ears. I like to say them over and over again to myself when alone; and I like, also, to thank God for that precious Bible that contains these wonderful truths that, if practiced, will bring about God's kingdom and his righteousness *here on this earth* of ours.

*After we had been sending out quite a lot of packages of seeds Mrs. Root interposed that perhaps the seed would not grow—that it might not be sufficiently mature. But I wanted to have all orders as much as possible filled before I went back to Florida. So I planted some seed in a box of rich soil; but as it did not seem to germinate after several days I was a good deal worried. Just this morning, however, I found quite a number of seeds coming up. The trouble was, I did not keep my boxes where it was warm enough; and so I am happy again in the consciousness that the seeds we are sending out will grow and produce white sweet clover the first summer. Some of the plants are now higher than my head, and covered with bees, when the weather permits, even during this middle of October.

AVIATION ANG STIMULANTS.

In the *Sunday School Times* for October 3 was an item that brought to mind a coup-

le of incidents of years ago. Below is the clipping:

ALCOHOL NOT GOOD FOR AVIATORS.

When the Wright brothers visited France with their perfected flying machine a number of years ago, they surprised those who sought to do them honors with their total abstinence habits. An opinion against the use of alcohol in flying expressed by one of the brothers was widely circulated. But since then there have been flyers who have thought they could combine alcohol with the dangers in the air.

If you want to know how it turned out with the young man who thought a drink might help him handle flying machines, you had better get that number of the *Times* and read the whole of it. When I first had an intimation that the Wright brothers were experimenting with a flying machine, I told our people here that I felt as if I could not rest unless I went down to Dayton to see the brothers work. I had just succeeded in getting one of the first automobiles, and with this I started on my trip. I found them on the very same aviation grounds that are now occupied, a few miles east of the city of Dayton. In order to be on hand, I obtained board and lodging at a farmhouse near by. At first I was somewhat worried for fear the brothers would not care to have a spectator hanging around, and maybe meddling while they experimented with an apparatus that might mean death instead of success in navigating the air like a bird. As the neighbors seemed to take no particular interest in the experiments, we three were, most of the time, a good deal alone, and we soon became fairly well acquainted with each other; and it was one of the happiest of my "happy surprises" when the brothers insisted that I should go home with them and get acquainted with their bright sister, Katharine, who was at the time the housekeeper for the two young men. Perhaps I might mention incidentally that this good sister, who was at the time a school-teacher, had helped more or less in financing the boys in their novel undertaking. Next morning at breakfast Katharine passed me a cup of very fragrant coffee. I took it as a matter of course; but when both of the young men shook their heads, declining the coffee, I ventured the question, "Why, look here, friends, I wonder if you have been making coffee just for myself when I never drink either tea or coffee unless it is on an occasion like this, to be like other folks."

Now, friends, listen to the reply. I can not remember now whether it was Wilbur or Orville who spoke; but it was something like this:

"We do use coffee to some extent ordinarily; but today we expect to make one

or more flights; and when we are going to handle that flying machine we want every bit of strength of mind and body to enable us to do just the right thing at just the right time; and we have learned by experience that a cup of coffee is a detriment and a hindrance; therefore no coffee in the morning when we expect to make flights during the day."

Well, here is the moral to rising young men, especially those who are doing their best to rise. Cut out or cut off, whichever you choose to put it, everything in the way of stimulants. Use milk as a beverage, not only in the place of booze, but in place of tea and coffee.

SALOONS AND THE "CHICKEN BUSINESS."

Just one more incident that occurred during that eventful summer. The farmhouse where I had board and lodging was kept by a renter by the name of Beard. Mrs. Beard was an invalid suffering from lung trouble. The doctors declared that her only hope was to get outdoors and keep outdoors. They recommended gardening or raising poultry, or something that would keep her in the open air. Nights and mornings, before the Wright brothers got around, I became quite well acquainted with Mrs. Beard. I think she had girls who did most of the housework, and she spent a great part of her time outdoors in raising chickens. Of course I could sympathize with her, as I had been more or less of a "chicken man" all my life, and was able to give her some advice. She succeeded in growing a beautiful flock of chickens—I think something like a hundred, and she got to be quite enthusiastic in the work and was evidently fast getting the better of her lung trouble. What do you suppose happened? When the chickens were of the very best size to be sold as broilers in the big city of Dayton, some chicken-thieves came in the night and took every last one—not a chick was left. Mrs. Beard was heart-broken. As the family was short in finances the blow seemed all the harder. Her hard work for weeks and months was all swept away in a single night; and before the winter's snow came on, Orville Wright wrote me that my good friend Mrs. Beard had died of "quick consumption." The loss of her chickens and the discouragement had spoiled her enthusiasm, and so her old trouble came back. The loss of that beautiful lot of chickens, the outcome of a summer's hard work, had certainly much to do with hastening her death, even if not the real cause of it.

Where does temperance come in in this part of my story? you may ask. It comes

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Mr. H. L. Lake, of Rupert, Idaho, who owns this short half acre of Kellogg Everbearing Strawberries, says:

"I used to think that the \$500 to \$1200 per acre reports in your strawberry book were considerably overdrawn, but I no longer doubt the big crops and big profits realized from Kellogg strawberries. Last season, from less than one-half acre of Kellogg's everbearers, I realized **\$582.92** besides all the berries we used and canned at home. None were sold for less than 30c per quart. The vines were loaded with berries when freezing weather came." H. L. Lake.

This is only one of many thousands of excellent reports we are constantly receiving from enthusiastic customers. Growers everywhere (many of them beginners) make at the rate of

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HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Clover, amber and buckwheat honey in 60-lb. cans. C. J. Baldrige, Kendaia, N. Y.

FOR SALE.—24 60-lb. cans choice buckwheat honey at 20c per lb., f. o. b. Akron, N. Y.
Vollmer & Demuth.

FOR SALE.—1,920 lbs. choice buckwheat extracted honey in new 60-lb. cans. Price 22c a lb.
A. C. Beach, North Rose, N. Y.

FOR SALE.—No. 1 white extracted honey in No. 10 pails weighing 10 pounds gross, \$3.00 each f. o. b. here. B. F. Smith, Jr., Fromberg, Mont.

FOR SALE.—Extra good quality clover or white aster honey, packed in 60-lb. tins, two in a case.
H. C. Lee, Brooksville, Ky.

FOR SALE.—Buckwheat honey in 60-lb. cans and 170-lb. keg. Any quantity up to 15,000 lbs. Write for prices. E. L. Lane, Trumansburg, N. Y.

FOR SALE.—Choice buckwheat extracted honey, fully ripened by the bees, in new 60-lb. cans.
O. W. Bedell, Earlville, N. Y.

FOR SALE.—Michigan's Best extracted honey in packages to suit; white clover, raspberry, milkweed, buckwheat.
A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE.—10 cases dark-amber extracted honey, two 60-pound cans to case, 70 per cent buckwheat, 25c per pound.
H. G. Quirin, Bellevue, Ohio.

FOR SALE.—6,000 lbs. strictly white-clover extracted honey, extra-light color, heavy bodied, fine flavor, in 60-lb. new cans.
J. B. Mason, Mechanic Falls, Me.

FOR SALE.—40,000 lbs. carload choice clover extracted honey. Was all left on the hives until after honey flow was over. Put up in new 60-lb. cans.
J. N. Harris, St. Louis, Mich.

FOR SALE.—40,000 lbs. of No. 1 extracted clover honey and 35,000 lbs. of aster honey, both of extra-light color, heavy body and fine flavor in 60-lb. cans.
W. B. Wallin, Brooksville, Ky.

FOR SALE.—Clover, heartsease, No. 1 white comb, \$6.50 per case; fancy, \$7.00; extra fancy, \$7.50; 24 Danz. sections to case; extracted 120-lb. cases, 30c per pound.
W. A. Latshaw Co., Carlisle, Ind.

HONEY AND WAX WANTED

Small lots of off-grade honey for baking purposes.
C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

Beeswax wanted. Highest prices paid. State quantity and quality.
E. S. Robinson, Mayville, N. Y.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City.

WANTED.—Comb and extracted honey, also beeswax. Send samples.
C. S. Fryer, 386 Halsey St., Portland, Ore.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED.—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price, also buy beeswax. E. B. Rosa, Monroe, Wisconsin.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston.
M. V. Facey, Preston, Minn.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and sample of extracted.
Hoffman & Hauck, Inc., Richmond Hill, N. Y.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

FOR SALE

HONEY LABELS.—Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

FOR SALE.—One Iowa cream separator, good as new. Cost \$85.00, will take \$60.00.
O. P. Hendrix, West Point, Miss.

FOR SALE.—300 Lewis 10-frame supers, good as new, with or without "inards."
J. A. Everett, Edgewater, Colo.

WANTED.—To buy 200 or 300 colonies of bees, preferably in Northern Michigan.
Closson Scott, 408 Belmont St., Warren, Ohio.

FOR SALE.—Perforated wooden well casing made of redwood, the best and cheapest well screen made. Send for descriptive circular.
G. M. Hawley, La Mesa, Calif.

FOR SALE.—Tomato seed, Chalk's Early Jewel, Redhead, and Livingston's stone. Three fine varieties, package, each, 25c.
J. F. Michael, Winchester, Ind.

FOR SALE.—Root and Falconer goods, 8 and 10-frame size; new and second-hand. Send for printed matter.
A. Bradbury, Monument Beach, Mass.

FOR SALE.—Good second-hand 60-lb. cans, two to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

FOR SALE.—100 extracting supers and hive bodies with full sheets of foundation or built combs. A. I. Root Co. goods, good as new. Address
H. D. Hopkins, Otterville, Mo.

FOR SALE.—10 Alley 10-frame wire queen and drone traps, 45c each; 40 Simplicity 10-frame empty bodies and 30 Simplicity 10-frame gable covers, 25c each. Richard D. Barclay, Riverton, N. J.

FOR SALE.—12 Heddon hives of two brood sections and two supers each, at \$2.50 each for the lot, or \$2.75 each for less, f. o. b.; also two Barred Rock and two W. Wyandotte cockerels, 200-egg strain or better, \$2.85 each. Eggs in season, 10c each. Order early.
John H. Rising, Johnson City, N. Y.

\$5.00 A DAY GATHERING EVERGREENS, roots and herbs. Ginseng, \$14. lb.; Belladonna seed, \$64 lb., or grow it yourself. Book and war prices free. Botanical 309, New Haven, Conn.

FOR SALE.—Will send a sample pound of medium brood foundation for 60c, postage extra. Other grades at proportionately low prices. Send for complete price list. Wax worked for cash or on shares. E. S. Robinson, Mayville, N. Y.

FOR SALE.—1,000 Standard beehives in flat, 8- and 10-frame sizes, supers with sections, full depth and shallow extracting frames. Entire lot new and strictly first class. I will sell in large or small quantities at low prices.

J. O. Hallman, Helena, Ga.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) Full line of Root's famous goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Only about 100 dovetailed and 100 homemade hives with about that many supers of each kind left, as per our advertisement in Nov. and Dec. numbers of Gleanings. We offer 30 10-frame dovetailed standard hives, Hoffman frames, new, nailed and painted, \$2.00 each; new nucleus and cages nailed ready for use, 20 3-frame, 25c each; 57 2-frame, 20c each; 28 2-pound cages, 35c each; 148 2-pound cages, 25c each; 150 1-pound cages, 20c each.

The Hyde Bee Co., Floresville, Texas.

WANTS AND EXCHANGE

Cash for 100 or more colonies of bees in good location. L. H. Robey, Worthington, W. Va.

\$15.00 reward if location suits me. Write me if your town has a population of 1200 or more and no movie show. Eddie Holt, Westby, Wis.

WANTED.—Ten-frame hive bodies and covers. L. D. Gale & Son, Mayville, N. Y.

WANTED.—Good second-hand four-frame honey extractor. L. S. Spafford, Martville, N. Y.

WANTED.—25 to 300 colonies of bees, or bees to work on shares. E. A. Harris, Albany, Ala.

WANTED.—Colonies of bees in lots of anywhere from 5 to 500. State lowest cash price wanted. H. G. Quirin, Bellevue, Ohio.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—Foundation machines. State size, kind, condition, when bought new and price asked. Grand Haven Pattern Works, Grand Haven, Mich.

FOR TRADE.—360 acres in Washington County, Arkansas, for large apiary. Frank Van Haltern, Box 248, K. S. A. C., Manhattan, Kans.

WANTED.—100 2-lb. packages of leather-colored bees. Untested queens in each package. Make me an offer. Walter Anderson, Eau Claire, Wis., R. F. D. No. 2, Box 36A.

WANTED.—To exchange, buzz-saw, uncapping can, honey tank, two extractors, some hives, in flat, a bargain. Want bees, queens, or honey, new crop. The Liberty Press, Shenandoah, Box No. 224, Ia.

WANTED.—To exchange, one good 250-egg Cyphers hot-air incubator, with both kerosene and gas fixtures, cost \$34.00 for an extractor. Write P. A. Ratliff, Sistersville, W. Va., R. D. No. 2.

Will exchange latest style, almost new, Stahl's Excelsior incubator for extractor in good condition, or other bee supplies of equal value. Have installed a Mammoth incubator.

The Glen Hatchery, Fultonville, N. Y.

WANTED.—Second-hand, two-frame honey extractor. State age, condition, and lowest price. L. Longtin, 1657 Dufossat St., New Orleans, La.

WANTED.—Good second-hand power extractor. Will pay cash or exchange comb-honey supers. Also have 60,000 folding cartons for sale at 1-3 price. H. G. Quirin, Bellevue, Ohio.

WANTED.—Would like to hear from some one who has from one to 25 colonies of bees for sale, in standard hives; also from any one who has empty hives for sale. Irving Daily, Barneveld, N. Y.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

WANTED.—To buy, from 50 to 200 colonies of bees in Oklahoma. Or would buy small place in the West, that is good location for apiary, with or without bees. Give full particulars in first letter. Distance from railroad no objection.

Eugene Couch, Choctaw, Okla.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1918 catalog. We will buy your share of the wax for cash or will work it into foundation for you.

Dadant & Sons, Hamilton, Illinois.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 36c cash, 38c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival. The A. I. Root Co., Medina, Ohio.

REAL ESTATE

FOR SALE.—One yard of bees, 100 hives or more, 10-frame hives, Hoffman frames, everything in excellent condition, with or without equipment and location. No disease. Apply Cozy Nook Apiaries, Blackfoot, Ida.

FOR SALE.—80 colonies of bees in good condition. Two comb supers to hive. 55 hives full of extracting combs. All supplies needed to run this year. Supply trade of country. House of eight rooms in good condition; out-buildings and fruit-fine well of water. O. Holdren, Darlington, Mo.

FOR SALE.—On account of failing health, I wish to sell my farm and apiary. Farm 80 acres, 40 cleared, balance very easily cleared. Town 4½ miles, school 1 mile; on telephone line and rural route. Large new frame residence, shop, small frame barn, chicken house, well of soft water in engine room. Good fences. Apiary, 125 colonies bees in 10-frame L. hives, very heavy with honey; all strong colonies. Good supply of full-depth extracting supers. Frames nearly all wired. This is A No. 1 location for an apiarist. My bees averaged \$25 per colony last year. Terms, \$3,500 cash, balance on long time. A bargain.

S. D. Clark, R. D. No. 1, Meyerhauser, Wis.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens. W. G. Lauver, Middletown, Pa., R. D. No. 3.

FOR SALE.—Three-hand Italian queens. W. T. Perdue, R. D. No. 1, Ft. Deposit, Ala.

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 84 Courtland St., New York.

FOR SALE.—1919 Golden Italian queens, price list free. Write E. E. Lawrence, Doniphan, Mo.

Queens on approval. Bees by package or colony.
A. M. Applegate, Reynoldsville, Pa.

Golden Italian queens, untested \$1.00 each, six for \$5.00.
E. A. Simmons, Greenville, Ala.

FOR SALE.—Bees by the pound for early shipment. Safe delivery guaranteed.
H. E. Graham, Gause, Texas.

FOR SALE.—100 colonies bees in best of condition in full double-story hives.
E. Simmons, Vero, Fla.

"She suits me" Italian queens, \$1.15 each from May 15th to Oct. 15; 10 or more, \$1.00 each.
Allen Latham, Norwichtown, Conn.

THREE-BAND ITALIANS ONLY. Untested queens, \$1.00; 6, \$5.00; 12, \$9.00; 50, \$35.00; 100, \$67.50. H. G. Dunn, The Willows, San Jose, Calif.

Leather-colored Italian queens, tested, to June 1st, \$2.00, after \$1.50; untested \$1.00, \$10.00 per dozen.
A. W. Yates, 15 Chapman St., Hartford, Conn.

FOR SALE.—Italian queens and bees by the pound. Early shipments. Guaranteed safe arrival and no disease.
Brazos Valley Apiaries, Gause, Tex.

GOLDENS THAT ARE TRUE TO NAME. Untested queens, each, \$1.00; 6, \$5.00; 12, \$9.00; 50, \$35.00; 100, \$67.50.
Garden City Apiaries, San Jose, Calif.

FOR SALE.—Pure-bred Italian queens; also a few hundred pounds of bees. Queens ready April 15. Orders filled promptly or money returned.
O. P. Hendrix, West Point, Miss.

FOR SALE.—Bright Italian queens at \$1.00 each, \$10.00 per doz. Ready April 10. Safe arrival guaranteed.
T. J. Talley, R. D. No. 4, Greenville, Ala.

FOR SALE.—Bees per pound, \$2.00; nuclei per frame, \$2.00; untested queens, \$1.00 each; tested queens, \$1.25. Order early.
C. B. Bankston & Co., Buffalo, Texas.

FOR SALE.—Golden Italian queens which produce gentle yellow bees, the hardest workers we have known. Untested, \$1.00, tested, \$1.50. Wildflower Apiaries Co., Trust Bldg., Little Rock, Ark.

Three-banded Italian queens and bees by the pound, also nucleus, in Root's shipping-cases, if preferred, or buyer furnish own cages. Send for price list. J. A. Jones & Son, Montgomery, Ala., R. D. No. 1, Box 114.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.
J. B. Brockwell, Barnetts, Va.

Red clover Italian bees and queens in one and two-pound packages for sale. Bees that produced for N. A. Kimery of Liberty, N. C., \$2,000 worth of red clover seed first crop. The M. C. Silsbee Co., Avoca, N. Y., says: "Bees purchased of you last season produced over \$50 worth of honey per colony 1918 crop." These colonies all headed with our queens. For truth of this statement we refer you to the above-named parties. We breed strictly for honey-gathering qualities and beauty, last but not least for hardiness. We try to please our customers. Write your needs. May and June delivery.
H. B. Murray, Liberty, N. C.

HELP WANTED

WANTED.—Two men with some experience to help with bees the coming season.
B. B. Cogshall, Groton, N. Y.

WANTED.—Good experienced man; also some good helpers. Good chance for willing workers.
Penn Co., Penn, Miss.

WANTED.—Young man as helper, also one experienced in the extracted line. State age, experience, and wages expected.
Chas. Adams, 1816 8th Ave., Greeley, Colo.

WANTED.—For five months, men with some experience to work in large apiary. State age and wages. Board furnished.
F. C. Alexander, Schoharie, N. Y.

WANTED.—Two young men with good habits, to work with bees and on farm. 1,200 colonies. Give age, experience, and wages.
N. L. Stevens, Venice Center, N. Y.

WANTED.—Two capable young men, clean in body and mind, as students in beekeeping for the season of 1919. For particulars address
R. F. Holtermann, Brantford, Ont., Can.

WANTED.—Experienced beeman and one helper. Fast workers and able to do heavy work. Prefer young men experienced in handling auto trucks. State all particulars in answering and wages wanted.
Ernest W. Fox, Fruitdale, S. D.

WANTED.—Young man who is willing to work, of clean habits and character, as helper in my 12 apiaries. Some experience necessary. State wages, weight, experience, and wages.
E. L. Lane, Trumansburg, N. Y.

WANTED.—Two bright, intelligent hustlers, who want to learn the bee business. Will teach you the business, good board and home in village, and some wages. Up-to-date equipment including auto truck.
D. L. Woodward, Clarksville, N. Y.

WANTED.—About March 1, a man of good habits, who is interested in production of extracted honey, to assist in care of bees in outyards. Good board and lodging furnished. State age, weight, past experience, and salary expected.
A. L. Cogshall, Groton, N. Y.

HELP WANTED.—Will give experience and fair wages to active young man not afraid of work, for help in large, well-equipped set of apiaries for season starting in April. State present occupation, weight, height, age, and beekeeping experience, if any. Morley Pettit, The Pettit Apiaries, Georgetown, Ont.

WANTED.—Men of energy, character, and clean habits, as helpers in our ten apiaries, over 1,000 colonies, crop in 1918 over 100,000 pounds. Best chance to learn. Write immediately, giving age, height, weight, experience, references, and wages. *all in first letter.* Need one experienced man and students.
E. F. Atwater, Meridian, Idaho.

SITUATIONS WANTED

WANTED.—Middle-aged man of good habits wants position as beekeeper's helper or to work apiary on shares. Wisconsin or Illinois preferred.
Oscar Carlson, Sandwich, Ills.

WANTED.—Anzac soldier with three years' active service wants position for the coming season on up-to-date bee yard. Thoro knowledge of beekeeping in America and Australia. Total abstainer. State wages and conditions. Age 28. W. A. Collins, 7th Batt. Australians, c/o James Miller, Esq., Bucyrus, Ohio.

Distributors Roots' Goods FOR PENNSYLVANIA

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Prothero, Bailey & Goodwin DUBOIS PA.

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Patent Counsel of The A. I. Root Co.
Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

Don't Send A Penny



Choose either of these shoes and we will send a pair simply on your request. Don't send a penny—no need even for a letter. A post card will do. They are such tremendous bargains that we know you will want to keep them. But you decide after you get them. They go at our risk on approval. This special offer is made because you can't judge the splendid style, quality and value of these shoes from pictures. You must actually see them. If you don't consider them startling values, ship them back and and we will refund your money.

Great Work Shoe

This shoe is built to meet the demand of an outdoor city workers' shoe as well as for the modern farmer. Send and see for yourself what they are. Built on stylish lace Blucher last. The special tanning process makes the leather proof against the acids in milk, manure, soil, gasoline, etc. They outwear three ordinary pairs of shoes.

Your choice of wide, medium or narrow. Very flexible, soft and easy on the feet. Made by a special process which leaves all of the "life" in the leather and gives it wonderful wear-resisting quality. Has double leather soles and heels. Dirt and waterproof tongue. Has heavy chrome leather tops.

Pay **\$3.85** for shoes on arrival. If, after careful examination, you don't find them all you expect send them back and we will return your money. No obligation on you at all. This is our risk, not yours. Order by No. X15012

**Order This Shoe
by No. X15012**

Remarkable Bargain

Work Shoe

Same kind of shoes the soldiers wear. You know that means strong, durable, built for hard service. Will long outlast any ordinary shoes. Lace Blucher style. Special tanning process leaves all the "life" in the leather and gives it wonderful wear-resisting qualities; also makes it proof against acids of milk, manure, soil, gasoline, etc. Genuine Munson Last. Wide and comfortable. Smooth, soft, easy toe. Double oak solid leather soles and double wear leather heels. Color—Tan. The very shoe you want for real wear. Biggest value for your money. Stands all kinds of hard usage, wetting, etc. A wonderful outdoor and farm work shoe bargain. Size 6 to 13. Send today—no money. Pay **\$4.10** for shoes on arrival. See how well made they are. If you don't say this is the biggest shoe bargain you can find, or if for any reason shoes are not satisfactory, return them and we will refund your money. Be sure to give size, and order by No. X16014.

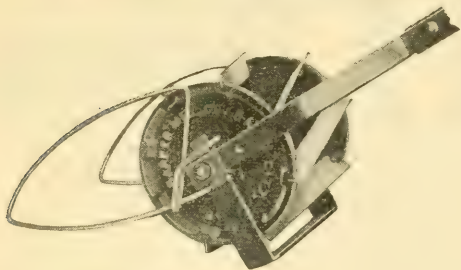
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Don't hesitate a moment. This sent-on-approval money-back offer saves you from any risk or obligation. Keep the shoes only if satisfied that they are unparalleled bargains. And send while these wonderful bargains are offered. Write today.

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Dept. X1061 Chicago



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THIS MACHINE Makes Gardening Pay

You Can Keep Your Garden in Perfect Condition All Season Without the Tiresome Work.

BARKER WEEDER, MULCHER AND CULTIVATOR

Is pushed along the rows at an ordinary walk. Blades revolving against stationary knife (like a lawn mower). destroy the weeds and at the same time break up the clods and crust into a porous, even mulch.

For deeper cultivation, it has easily attached shovels—making three garden tools in one.

"Best Weed Killer Ever Used"

The BARKER chops the weeds and upturns their roots. Works close to plants. Guards protect the leaves. Cuts runners. Leaves a mulch which draws and holds the moisture at the plant roots. Send us your name and address on the coupon below and we'll mail you our

FREE BOOK

Tells about this wonderful machine and what users think of it; also authentic information on care of gardens. Fill out the coupon and mail it now, or send postal.

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DEPT. 10 DAVID CITY, NEB.

Barker Mfg. Co., Dept. 10, David City, Neb.
Gentlemen:—

Send me, postpaid, your FREE Booklet and Factory-to-User Offer.

Name

Postoffice

State

Our Food Page—Continued from page 90.

this method the room should be kept just about as warm as a sitting room. In the morning Helen rose early and found her bread twice as big as it was the night before and nice and light and bubbly around the edges. She took it out and kneaded it again very lightly for about half a minute, cut in two, shaped it in loaves and put them in warm bread pans which had been oiled. These she put back in a warm place, closely covered, and in about an hour those loaves had grown to twice the size again and were ready to be baked. Before putting the bread in the oven she brushed the top of each loaf with melted butter to make a crisp, brown crust. When they had baked about an hour in a moderate oven Helen lifted them out of the pans with a clean towel, set them on the edges crosswise, to cool, wet the top crust of each loaf with water to prevent it from being too hard, and then went off to play.

And that evening a War Savings Stamp came out of Helen's father's pocket and was stuck in Helen's book.

Below I am giving you the recipe just as Helen used it. To make four large loaves of bread instead of two, change the word cup to pint, the word pint to quart and double all the other ingredients.

BREAD.

3 cups warm water	2 teaspoons sugar or honey
1 small potato, riced	
$\frac{5}{8}$ cake dry yeast	2 teaspoons salt
2 tablespoons shorten-	$\frac{1}{2}$ teaspoon soda
ing	about $4\frac{1}{2}$ pints bread flour

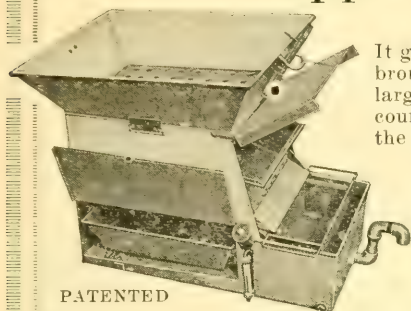
At 1:30 p. m. sift $3\frac{1}{2}$ pints of the flour, the soda, and the salt into the bread mixer and set aside in a warm place. Put the yeast to soak in $\frac{1}{2}$ cup of the warm water and heat another cup to boiling and pour over the shortening, the sugar, and the riced potato. When the latter has cooled to lukewarm add the yeast and the water in which it was soaked and one pint of flour, beating it until it is a smooth batter. Cover and let rise in a warm place until 9:30 or 10 o'clock. It should then be light and full of bubbles. Pour over the flour in the mixer, add the rest of the warm water, $1\frac{1}{2}$ cups, and turn the crank three minutes, or until a smooth dough is formed. As flour varies so much it may be necessary to add more to make a smooth dough. Fair bread may be made without any hand-kneading, but a little better texture is secured by removing the stirring rod and kneading by hand a couple of minutes either in the mixer or on a floured board. Then cover and let rise in a warm room over night. Early in the morning, knead lightly, divide into two large loaves, put in oiled pans, and let rise until doubled in bulk, about an hour. In cold weather it often takes longer. Bake in a moderate oven about one hour.

If preferred the sponge may be started late in the evening and the dough mixed in the morning.

THE GREAT YEAR OF 1919 IS HERE, AND SO IS THE

Severin Capping Melter & Separator

(COMBINED)



PATENTED

It got a fine start in 1918 from advertisements which brought inquiries and orders from producers in all large honey-producing sections, in this, and other countries. Get the best—it pays in the end, just as the best Extractor does. Saves time, labor, and fuel.

Seeing the great need and demand for these melters, I am better prepared to fill orders than in 1918; but, owing to the great need of copper by the Government, I am limited on supply material, as I use only the best. Handled right, this melter will do the work where others fail.

F. J. Severin -:- Imperial, Calif.

“falcon”

Your Duty—Do You Know It?

It is to get ready for the coming season and be ready for the first honey flow. This will net you profits. Prepare your bees for a big year and take no chances. Get the best to do with and have the best results.

Our Duty—Do We Know It?

We get the beekeepers ready for the big season. Supply them with the best of everything with which to work and get the best results. Send us a list of your requirements for quotation. **TO DELAY MEANS LOSS TO YOU.** “Falcon” service cannot be beat. Catalog and Simplified Beekeeping on request.

W. T. Falconer Manufacturing Company

Falconer, New York

“where the best bee hives come from”

“falcon”

QUEENS BEES BY THE POUND QUEENS

Three-banded and Golden Italians. The best of either. They are hustlers—gentle to handle, cap their honey white, are very resistant to European foul brood. Now that *peace* has been declared, and our boys will be home from service, we believe the *Express* companies will be able to deliver. So we are also quoting prices by *Express*.

Booking orders now, one-fourth down, balance at shipping time.

BY PARCEL POST, PREPAID		BY EXPRESS F. O. B. CALLEN	
One 1-pound package.....	\$2.90	One 1-pound package.....	2.40
One 2-pound package.....	5.00	One 2-pound package.....	4.25
One 3-pound package.....	7.00	One 3-pound package.....	6.25
Select Untested Queens, \$1.50 each	Tested.....	\$2.50	Select Tested..... \$3.00

Ten per cent discount on orders amounting to 25 packages or more. Add price of Queen wanted when ordering packages of bees. Breeders, \$5.00 and \$10.00. Send for Free Circular giving details. References: The Guaranty State Bank, Robstown, Texas, and The City National Bank, Corpus Christi, Texas.

NUECES COUNTY APIARIES, CALLEN, TEXAS

E. B. AULT, Proprietor

BARGAIN PRICES

ON

BEE SUPPLIES

We have just bought the stock of The Root Co.'s Des Moines branch, which was moved to Council Bluffs several months ago

The stock consists of goods made before manufacturing costs were so high. We bought at remarkably low figures and will give you the benefit.

Don't waste any time---write us immediately for prices on the supplies you want. Mention the Root Des Moines stock so you'll be sure to get the lowest prices.



The Kretchmer
Manufacturing Co.

Dept. G Council Bluffs, Ia.

AROUND THE OFFICE

M.-A.-O.



The above picher was taken as when the man as whats in the for ground didn't know it. He aint a bad lookin feller at that, behind a bee vale. He has somethin as seeminly is comfortin to him greatly in his mouth as what I and "Uncle Amos" don't approve but we wont to blame for that.

(Continued on page 125.)

BEE-SUPPLIES

FALCON LINE

We carry the largest supply
in our section. Send us
your inquiries.

Lowest Prices, Quality Considered

C. C. Clemons Bee Supply Co.

128 Grand Ave.

KANSAS CITY, MO

Order Bee Supplies EARLY

We can supply you with the best of everything. Dovetailed Hives, Supers, Frames, Honey Sections, and Comb Foundation. Be prepared for the coming season. Our catalog ready Jan. 10.

Send for it.

August Lotz Co., Boyd, Wis.

PLEASE NOTE---WE SELL

ROOT'S GOODS ONLY

We have a complete stock.

Our prices are identical with those of the factory.

Our service is immediate.

It's better business for you to use the best goods,
and get them early. Keep ahead of your work.

We suggest that you consider a Buckeye outfit.

It's the best in hive equipment.

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CASH OR TRADE

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Get Bigger Crops from Every Acre

Patriotic farmers and gardeners will make every foot of land yield bigger crops of corn, vegetables and fruit. Don't experiment with untried novelties or varieties that do not have a good reputation. America must not "fall down" on food production this year.

Sow the Best Seeds Your Money Will Buy

Sixty-five years' experience in seed-growing and selling are back of the stocks we offer. A multitude of American farmers will say, "there are no better and few as good." Everything you need for farm, garden and orchard can be secured from

The Storrs & Harrison Co.

America's Largest Departmental Nursery

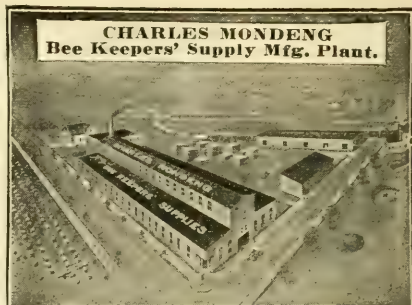
Our 1919 Catalogue lists standard farm, vegetable, and flower seeds, fruits, shade trees, shrubs and evergreens. Write today for copy.

The STORRS & HARRISON Co.

Box 534, Painesville, O.



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All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. Send for a price-list. I can save you money.

*Will Take Bestwax in Trade at
Highest Market Price.*

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

Overstocked Big Discount

25% OFF SOME ITEMS

Will Sell at Following Prices While Stock Lasts

Massey Hives, 1-story, Five,	\$14.25
Scalloped Separators,	100, 1.52
Hive Hooks,	100, 1.50
Super Springs,	100, .85
Ventilated Bottoms, 8-fr.,	5, 2.70
Ventilated Bottoms, 10-fr.,	5, 2.80
Division-Boards—standard,	10, .75
Aluminum Wiring Tool, each,	.30
Rubber Coated Gloves,	pair, 1.20

The Kretchmer Mfg. Co., Council Bluffs, Ia.
Dept. G.

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To save successfully you need a **SAVINGS ACCOUNT**. We invite you to open an account **BY MAIL** in our Savings Department at 4 per cent compound interest.

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ASSETS OVER ONE MILLION DOLLARS

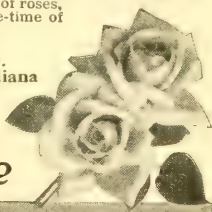
12 beautiful ROSE BUSHES for \$1

Send \$1.00 and receive postpaid now or later these strong, hardy plants. Collection has Pink and White Maman Cochet and Climbing American Beauty—alone worth price of the twelve. All grown on own roots in best rose soil in America. Our 1919 book "Roses of New Castle" describes and illustrates immense stock of roses, shrubs, bulbs and seeds. Life-time of experience in this book free.

Send postal today.

HELLER BROS. CO.
Box 218, New Castle, Indiana

ROSES of New Castle



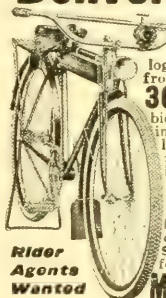
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30 Days Free Trial on the bicycle you select, actual riding test in your own town for a full month. Do not buy until you get our great new trial offer and low Factory-Direct-To-Rider terms and prices.

TIRES LAMPS, HORNS, pedals, single wheels and repair parts for all makes of bicycles at half usual prices. No one else can offer such values and such terms.

SEND NO MONEY but write today for the big new Catalog. It's free. **MEAD CYCLE COMPANY** Dept. A153, Chicago



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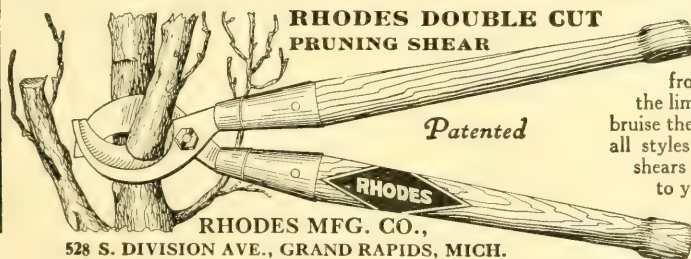
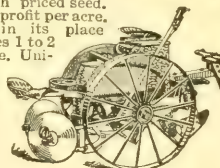
IRON AGE

Farm, Garden and Orchard Tools
Answer the farmers' big questions, How can I grow crops with less expense? How can I save in planting potatoes? How make high priced seed go farthest? The

IRON AGE Potato Planter solves the labor problem and makes the best use of high priced seed. Means \$5 to \$50 extra profit per acre. Every seed piece in its place and only one. Saves 1 to 2 bushels seed per acre. Uniform depth; even spacing. We make a full line of potato machinery. Send for booklet today.

No Misses
No Doubles

Bateman M'F'g Co., Box 20B, Grenloch, N.J.



**RHODES DOUBLE CUT
PRUNING SHEAR**

Patented

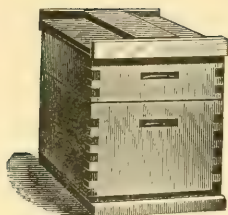
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L. L. FOREHAND

-:-

FORT DEPOSIT, ALABAMA

Around the Office—Continued

He was in Californy at the time at the head of the beekeepin extension courses bein given out there. When hes at Washinton hes at the head of all the beekeepin everywhere. Somebody around the office here once called him old apis tyrannus. I asked what it means and Wallie Root what once was Stenog in Gleanins and knows even Greek said it meant BOSS and it was proper latin to apply to just such as him. Well, if he aint boss who is it as has got a right to be? I like a boss as is a boss. I dont know as he is. I dont want him to get down on me, anyway, so I don't know as he is a boss, so I dont.

* * *

Ernie Root's out in Los Angeles, Californy. He's been with Phillips and his gang a teachin Rocky Mountain beekeepers how to raise honey in the east I spose but I dont know. Anyway, my boss and that whole caboodle of short-course lightsheddens includin Phillips and Demuth and J. Smith and Pellett and Mendleson got under a considerable suspicion in Los Angeles city while they was there, so they did. They started out in broad day light, E. R. a lead-in em, to reconnoyter the new Root company factory out there. It woant a long distance to go and it woant no long-distance walkin record as what them fellers were after then or now or never but they kept a walkin and a walkin and some of em finally got dissatisfied as to where they was at and

as to the constantly prolongin continooance of the travel by foot. Not a one of em could have give a reasonable guess as to a single pint of the whole compass. They had got so they were turnin every corner they come to just for luck and were actin queer. The general direction they went resembled the track of a thomascat thru the backyards of his favorite adjacent neighborhood on a warm spring night. When the authorities finally got em to the rescue mission for lost children they soon got rational and said they had started out supposin E. R. could find his own shop in daylight. E. R. said he had taken too much advice as to general and partiklar directions from the rest of 'em and that was the whole trouble. His wife went on to Los Angeles at once and is now with him. The others went home to their wives and presuminly are now all right again.

* * *

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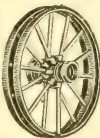
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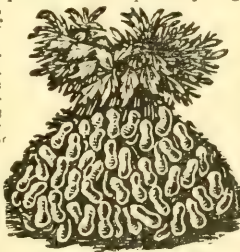
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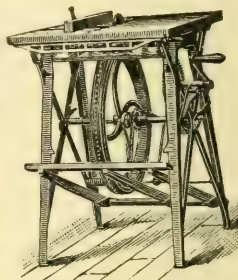
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American Bee Journal

Hamilton, Illinois

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Very truly yours,

*CHAS. G. SCHAMU,
President Onondago County Beekeepers' Society.*

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Kenedy, Texas, June 7, 1918

Enclosed please find bill of lading for beeswax sent by freight, which please hold until further notice. Also 120 pounds by express, for which please send me same amount in medium brood for regular Hoffman frames. Please send this by express as soon as possible.

In conclusion I will say that after having used other foundation for years, your foundation is far superior to any I have tried, and I gladly pay express charges both ways in order to get it.

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Dadant & Sons, Hamilton, Ills.

Gleanings in Bee Culture

Vol. XLVII

MARCH 1919

No. 3



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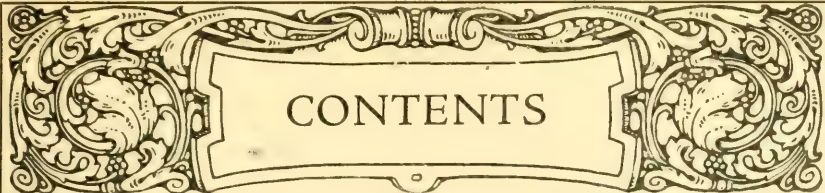
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nature of the honey flow, etc. Exactly the same machinery, the same process and the same materials are used by all manufacturers of **Weed Process Foundation**. Other conditions being equal, the bees will not draw out one brand of **Weed Process Foundation** any quicker than another brand of the same process.

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Manufacturers of Weed Process Foundation "Best by Test"

HONEY MARKETS

The honey market is very quiet, with very little demand at the high prices at which honey is still quoted. The situation is practically as described by a well-known New York honey-buyer a few days ago when asked about the honey market, his reply being: "There isn't any honey market at present."

As will be seen from price quotations below, honey-dealers are still quoting the high prices, but they are not moving their stocks at these prices.

The hope in the situation is that there will soon come a readjustment of prices that will move honey stocks now on hand, and yet not reduce the price below a figure at which honey can be purchased in the future at a good profit price to the honey-producer. What that price will be must wait on the opening of the new honey season of 1919 and the trend of prices thruout the whole food list during the next several months.

Below will be found the quotations as gathered by the Bureau of Markets and by dealers who regularly quote for Gleanings:

U. S. Government Market Reports.

HONEY ARRIVALS SINCE LAST REPORT.

No arrivals reported.

SHIPPING POINT INFORMATION.

San Francisco.—Supplies liberal. Practically no demand or movement, buyers holding off. Cash to producers at country loading points: extracted, per lb., water white, 18-19c; sage white 18c; light amber, 17c; dark amber 14-15c. Beeswax, 36-38c per lb.

Los Angeles.—No demand, practically no movement, no sales reported. Only few cars still in State. Beeswax: few sales. Cash to producer on farm, 38c per lb.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the prices at which the "Wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding two weeks. Prices represent current quotations.)

Chicago.—No carlot arrivals. Supplies liberal. Demand light, movement limited, prices unsettled. Sales to jobbers; extracted, per lb., white 20-24c, amber 18-26c. Comb: 24-section cases, No. 1, mostly \$6.50 per case. Beeswax: refined 45-50c; unrefined, mostly 42c per lb.

Cincinnati.—1 California extracted arrived, no carlot arrivals comb, nearby receipts very light. Supplies liberal. Practically no demand, no sales reported. Beeswax: demand and movement moderate; average yellow 40c per lb.

Cleveland.—Demand slow, prices lower. Sales to bakers and confectioners: Western 60-lb. tins, sweet clover and orange blossom, 22-26c per lb.

Denver.—Approximately 4 000 pounds extracted arrived. Receipts light. Demand and movement slow. Sales to jobbers: extracted, white, 20-22½c per lb. Beeswax: cash to producer, 38c per lb.

Kansas City.—1 Colorado and approximately 60 cases by freight arrived, 1 broken car on track. Demand and movement moderate. Sales to jobbers: comb, Missouri, 24-section flat cases No. 1, \$7.50-8.00; Colorado No. 1, \$7.50. Beeswax: 35-40c per lb.

Minneapolis.—Homegrown receipts light. Supplies moderate. Demand and movement slow, little change in prices. Sales direct to retailers: comb, 24-section cases, Minnesota, quality and condition fair, dark color \$6.00-7.00; Colorado, fancy white, quality good, condition generally good, mostly \$7.50. Extracted: Western, quality and condition generally good, 60-lb. cans, mostly 25c per lb.

New York.—Arrivals: 100 barrels Mexico 2,156 barrels West Indies. Exported: 2,245 cases, 127 barrels to England, 1,214 cases to Sweden. Demand

and movement very slow, very few sales. Sales to jobbers: extracted, Porto Rican, \$2.20-2.30 per gallon, few sales \$2.40; New York, buckwheat 18-21c per lb. Beeswax: 442 bags, 90 boxes West Indies arrived. Demand and movement moderate; light, 42-43c; dark 40-42c per lb.

Philadelphia.—1 Wyoming extracted arrived. Demand very slow, weak feeling. No sales reported.

Spokane.—No rail arrivals. Supplies not cleaned up. Demand and movement moderate. Quality and condition good. Sales direct to retailers: strained, Idaho, water white in tins 20-23c per lb. St. Louis.—Supplies light. Demand and movement slow. Sales to jobbers: extracted: Southern, light amber, per lb., in barrels 19-20c, in cans 21-22c. Comb: practically no supplies on market. Beeswax: prime, few sales 35c per lb.

St. Paul. Supplies liberal. Demand and movement slow. Sales direct to retailers: Colorado quality and condition good, fancy white, 24-section cases, mostly \$7.50. Extracted: Western, quality and condition generally good, mostly 25c per lb.

EXPORT DISTRIBUTION OF HONEY.

From data supplied by the Bureau of Foreign and Domestic Commerce, the following figures are compiled: total export of honey for 10-day period of Jan. 1 to 10, 1919, was 37,218 lbs.; export during corresponding 10-day period in 1918 was 560,808 lbs. Total export of honey for 10-day period of Jan. 10 to 20, 1919, was 87,860 lbs.; export during corresponding period in 1918 was 873,597 lbs.

Charles J. Brand,

Chief of Bureau.

Washington, D. C., Feb. 15, 1919.

General Quotations of Wholesalers.

[These firms are asked to quote the wholesale price they make to retailers. Accordingly their prices must be figured at least one profit higher than the price paid the producer. The large dealers do not quote prices in print that they will pay futrely to producers.]

NEW YORK.—We quote from several of the leading honey-dealers in New York, under date of Feb. 15, as follows:

"Demand for domestic and export, light. Considerable quantity is arriving from the West Indies. Market weak. Comb honey, fancy, per case, \$8.00; No. 1, per case, \$7.50; No. 2, \$7.00. Extracted honey, white, per lb., 23c; light amber in barrels, \$2.25. Clean average yellow beeswax, per lb. 40 to 42c."

"Market dead. Extracted honey, white alfalfa, 25c; light-amber sage in cans, 26c."

"Honey and beeswax are quiet and rather weak with plentiful stock on hand, and offerings for shipment. There is a fair demand, and export demand is expected, which should have a good effect on the market. Extracted honey, light amber, in barrels, \$2.25; amber, in barrels, \$2.10. Clean average yellow beeswax, per lb., 41 to 42c; dark, 37 to 38c."

"Our market is slower, undoubtedly on account of the plentiful supply of sugar everywhere. Extracted honey, white, 18c; light amber, in cans, 16c; amber, in cans, 15c; light amber, in barrels, 14c; amber in barrels, 12c."

BUFFALO.—Comb honey cleaned up. Demand for extracted honey very poor selling. Extracted honey, white, 18-20c; amber and light amber, in cans, 18c. Gleason & Lansing.

Buffalo, N. Y., Feb. 14.

CLEVELAND.—Comb honey is selling very slowly, with prospects of lower prices. Comb honey, fancy, per case, \$7.75-8.00; No. 1, \$7.25-7.50; No. 2, \$6.25-6.50. C. Chandler's Sons.

Cleveland, O., Feb. 13.

PHOENIX.—No sales or purchases of honey the past few months. Inquiries are coming in as to the price of honey for the coming season. Clean, average yellow beeswax, per lb., 37c.

Phoenix, Ariz., Feb. 14. L. M. Lossing.

KANSAS CITY.—The market on extracted honey is a little slow at the present time and is selling around 23 cents, which seems to be the top on the best white honey altho an occasional case brings more. The comb honey market is good, selling

around \$7.50 per case. Clean average yellow beeswax, per lb., 40c.

C. C. Clemons Produce Co.

Kansas City, Mo., Feb. 13.

DENVER.—Comb honey in fair demand. Supply very light. Extracted honey, trade slow, supply good. Comb honey, fancy, per case, \$7.50; No. 1, \$7.00; No. 2, \$6.50. Extracted, white, per lb., 25c; light amber, in cans, 23c; amber 20c. For clean, average yellow beeswax we pay 38c cash, 40c trade.

The Colorado Honey Producers' Asso.

Denver, Colo., Feb. 14.

ST. LOUIS.—Receipts of comb honey very light. Extracted dull. Offers liberal. Price nominal. Comb honey, extra fancy, per case, \$7.25; fancy, \$7.00; No. 1, \$6.50. Extracted light amber, in cans, 22c; amber, in cans 21c, in barrels 20c. Clean, average yellow beeswax, per lb., 35c.

R. Hartman Produce Co.

St. Louis, Mo., Feb. 12.

PORTLAND.—Honey is weakening quite a good deal on account of sugar restriction being taken off. Consumer not using honey as freely as heretofore. Comb honey, extra fancy, per case, \$7.50; fancy, \$7.25; No. 1, \$7.00; No. 2, \$6.50. Extracted honey, white, per lb., 20c; light amber, in cans 18c; amber, 16c.

Pacific Honey Co.

Portland, Ore., Feb. 12.

SABINAL.—There is a slackness in demand at this time, tho very little honey in the hands of producers. Extracted, light amber, in cans, 20-22c; amber, 18-20c. Clean, average yellow beeswax, per lb., 38-40c.

J. A. Simmons.

Sabinal, Tex., Feb. 10.

MONTREAL.—Supplies of honey quite large. Demand fairly active. Comb honey, extra fancy, per case, 30c; fancy, 28c; No. 1 27c; No. 2, 24c. Extracted honey, white, per lb., 27c; light amber, in cans 25c, in barrels 24c; amber, in cans 22c, in barrels 21c.

Gunn, Langlois & Co., Ltd.

Montreal, Can., Feb. 13.

HAMILTON.—Honey is moving better this month. Extracted, white, in cans, 26c.

F. W. Fearman Co., Ltd.

Hamilton, Ont., Feb. 14.

TORONTO.—Prices have declined. The market is very stagnant. Strained white clover honey is selling slowly at 22-23c.

Eby-Blain, Ltd.

Toronto, Ont., Feb. 12.

CUBA.—Extracted honey, light amber in barrels, \$1.60 per gal.; amber, \$1.60 per gal. Clean, average yellow beeswax, per lb., 38c.

Matanzas, Cuba, Feb. 14. Adolph Marzol.

Classified Advertisements—Received Late

FOR SALE.—30 stands of bees.

F. J. Rettig, Wabash, Ind.

FOR SALE.—Italian queens, hives, and supplies at low prices.

R. Kramske, 1104 Victor St., St. Louis, Mo.

FOR SALE.—100 dovetailed 10-frame metal-spaced beehives with frames. Cheap.

J. R. Marye, Buncheon, Mo.

BEEKEEPERS OF THE NORTHWEST! Order ROOT Supplies from George F. Webster, Sioux Falls, South Dakota.

FOR SALE.—New standard hives, bottom-boards, covers, and frames, at 33 per cent off usual price. Write for particulars.

O. L. Rothwell, Gillet, Pa.

FOR SALE.—Buckwheat honey in 60-pound cans, 2 cans in each case; 14 cases. Make me an offer f. o. b. here.

Robert Conn, Roaring Branch, Pa.

FOR SALE.—Second-hand 60-lb. cans, two to the case, 50c per case f. o. b. New York. Also second-hand maple-syrup cans at 10c each.

Hoffman & Hauck, Inc., Richmond Hill, N. Y.

FOR SALE.—Extractor, uncapping-can, honey-tanks, extracting outfit; hives in flat, all new. Bargain. Want bees, queens, or honey.

The Liberty Press, Box 224, Shenandoah, Iowa.

FOR SALE.—2,760 lbs. No. 1 white extracted clover honey and 1,920 lbs. buckwheat honey in 60-lb. cans; also No. 1 white extracted clover honey in 10-lb. pails for \$2.60 each.

Charles Sharp, Romulus, N. Y.

FOR SALE.—600 colonies Italian bees, 1,600 supers drawn combs, 500 lbs. foundation, 500 lbs. wax, covered motor truck, two six-comb friction-drive extractors, gas engine, 600 excluders, 150 four-colony winter cases. One of the best locations in Canada goes with the bees. Everything must be sold. Am retiring from business.

H. D. McIntyre, Woodbridge, Ont., Can.

EXCHANGE.— $\frac{1}{4}$ -H. P. motor with speed control, 110 volt, perfect condition, for automatic hand extractor.

C. C. Gray, Quincy, Ind.

WANTED.—Two-pound packages of bees and queens, \$2.50.

O. N. Baldwin, Baxter Springs, Kans.

Special Offer Everbearing PLANTS.... Strawberries POSTPAID

AMERICUS, PROGRESSIVE, SUPERB, FRANCIS, Peerless

Some of each while in supply. When sold out of one or more we will send the others. Don't delay.
100 Plants, \$1.75; 200 Plants, \$3.40; 300 for \$5.00

Catalog free

C. N. FLANSBURGH & SON JACKSON, MICHIGAN

ARE YOU READY

For Your Bees to Start Work?

It is good business for you to order early and use up-to-date supplies.

OUR SERVICE

is immediate and personal. Lewis supplies are best. The best is the cheapest. Let us send catalog and quote prices.

Western Honey Producers

DEPARTMENT C
Sioux City, Iowa

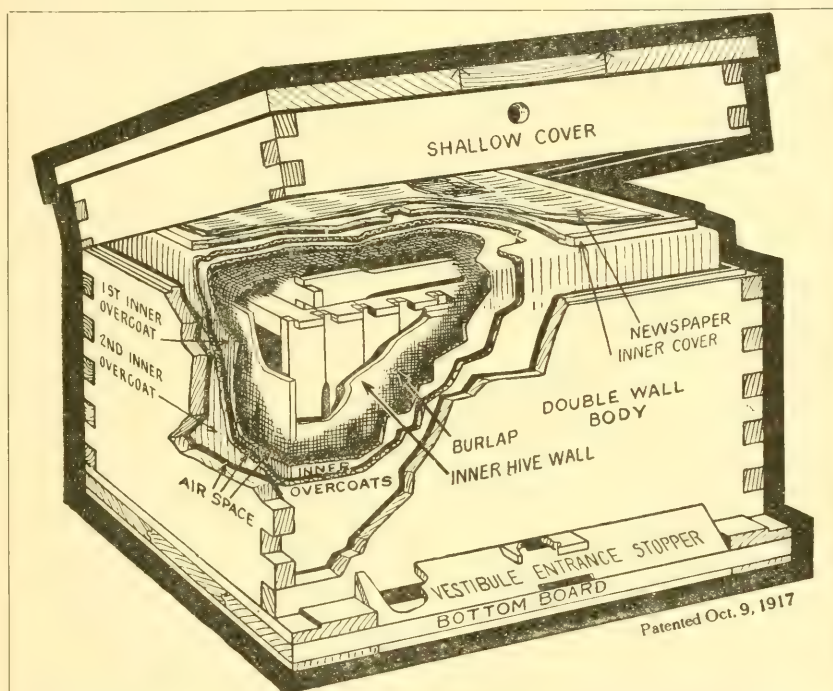
From Central NEW YORK

Shipments of Bee Supplies can be made promptly on time, and freight will be saved thereby. Beekeepers, as the years go by, are getting in the habit of ordering supplies earlier. This fall we had an exceptional increase of early orders. A few years ago, most, if not all, waited till May and June before ordering, with the result they were not prepared for the season. One of our largest beekeepers of the State made a practice of getting ready during the fall and winter and secured large returns during the season following. In fact, he cleaned up after the year's crop—all separators, supers, and everything piled away nicely. Now he is gone, but left everything in good shape. If every one would follow his example, what a large yield of honey would be secured. We are glad to say quite a large number do. Why not, if you have not already done so, estimate your requirements for next season? One of our beekeepers that secured a year ago \$10,000.00 worth of honey, this year secured \$14,000.00—a fortune. Why not get in line and get your share?

F. A. SALISBURY
1631 WEST GENESEE STREET
SYRACUSE, NEW YORK

Winter Problem Solved by the Hive with an Inner Overcoat.

For your information and to be convinced of the efficiency of this hive, send for a sample. For a limited time one sample hive will be sent set up and equipped as per this illustration at the special price of \$5.00.



PROTECTION HIVE, showing how insulation is arranged when no winter rim or chaff cushion is used. A piece of burlap, bagging or similar material is telescoped down over the brood nest between the inner and outer walls with the Inner Overcoats. The Inner cover is laid bottom side up over the Inner Overcoats, providing a dead air space over them. Added insulation is provided, by laying a piece of newspaper on top of the board.

Our new illustrated catalog for the season of 1919 and a special circular of the Woodman Protection Hive, showing 10 large illustrations will be sent upon request. Send us a list of your requirements and let us figure with you on your wants for the coming season.

A. G. WOODMAN CO., Grand Rapids, Mich., U. S. A.

Don't Take Our Word

For the claims we make in regard to DADANT'S FOUNDATION. Ask the beekeepers who have tried it side by side with other makes and who KNOW its value by the results.

READ THIS:

Dadant & Sons, Hamilton, Ill.

Gentlemen: Yours is certainly the best foundation by far, and if there is an honest advertisement in the American Bee Journal, it is yours on the 401st page of the December issue, as I found my bees to be the same as A. N. Norton's, of New Mexico. I used foundation from ———, and from ———, and yours' all last summer, and the bees drew out yours and worked more quickly on it than on either of the other two brands. The only difference that I could see was that there was a little difference in color. There must be something that the bees can tell better than we can.

Yours truly,

Woodhull, Ill., Dec. 23, 1918.

ELMER KOMMER.

ALSO THIS ONE:

Dadant & Sons, Hamilton, Ill.

Gentlemen: At what price will you furnish me 1,000 pounds of Medium Brood Foundation, in sheets to fit the Hoffman frames, packed in cartons and also packed 25 pounds in a box?

One of the reasons I have for asking the price in the above paragraph is that I have used a great deal of your foundation, as well as that of other manufacturers, and the bees certainly work on yours quicker than on others, and possibly I might prefer to sell my beeswax to you, or to others and buy your product, even if at some extra expense. I have about 40,000 drawn-out combs from foundation sheets and have accumulated quite a bit of information regarding the drawing out of full sheets of Comb Foundation, etc. An early reply is requested.

Yours very truly,

Asheville, N. C., Dec. 27, 1918.

ELTON WARNER.

Mr. Warner is a very extensive beekeeper, having large apiaries on the island of Porto Rico. Certainly in drawing out 40,000 combs one would have a fine opportunity to note any preference of the bees for a certain brand of foundation.

These testimonials and many others come to us *unsolicited*. They prove to us that DADANT'S FOUNDATION deserves the prestige that it enjoys. Insist on DADANT'S FOUNDATION. If you cannot get it of your dealer, then order of us.

Dadant & Sons, Hamilton, Ills.

GLEANINGS IN BEE CULTURE

MARCH, 1919

EDITORIAL

THE SEVERE WINTER LOSSES of 1917-'18 caused the beekeepers of the Northern honey - producing sections to look for a method of wintering which would insure them against a recurrence of such a disaster.



Making a New Bee Cellar.

Cellar wintering was one of the methods advocated, and inquiries were coming from many beekeepers asking for plans and advice in building them. In order to give reliable information along this line E. R. Root visited several of the best beekeepers of the United States who had made cellar wintering a success, and a report of this was given in Gleanings for September, 1918. The A. I. Root Co. decided to build a cellar which would incorporate, as far as possible, all of the essential features of the various cellars examined, and which would enable them not only to winter their own bees, but to give first-hand information to the readers of Gleanings. The location selected was in a railroad embankment at the west end of a warehouse. On Oct. 5 a contract was let for its construction, the dimensions to be 12 by 60 feet, and 6½ feet high, inside measurements, a door communicating with the basement of the warehouse at the east, and ventilation provided by an eight-inch tile thru the cover at the west end. The walls were to be of solid concrete 10 inches thick, and the roof 12 inches thick, the latter reinforced with ½-inch steel bars running crosswise every 4 inches and ⅜-inch bars lengthwise every 12 inches.

On Dec. 3 the contractors hauled the last load of soft mud on to the roof. The grading had been started some three weeks before this, but was stopped on account of the heavy rains. It took approximately 100 barrels of water to mix the cement. This, together with the 1½ inches of rainfall which came the latter part of November, combined to make the cellar as wet as water could make it. As soon as the pouring of the cement had been finished, an electric fan was installed in the door opening into the basement of the warehouse, and coke fires were started at several places in the cellar. These were kept running day and night until Dec. 1, at which time the cellar seemed to be well dried out; so the forms were taken down, the room cleaned out, and on

the afternoon of Dec. 6 we began moving the bees in. It was quite cold that morning, but began to get warmer before night; and by noon the following day bees were flying, and we decided to leave the rest of them out until it became colder.

The weather continued mild, and bees were flying every day or two until the 25th, which was quite warm. We opened one of the hives outside and found eggs and young brood. That night it turned cold, and we finished putting the bees in the cellar the following day.

During this time a decided change had taken place in the cellar. The cement, which seemed white and dry 20 days previously, was thoroly saturated with water. Large drops were hanging from the ceiling and trickling down the walls, and the floor was becoming muddy in places. The hydrometer showed about 93 per cent of humidity. This per cent gradually increased. About Jan. 21 a warm drizzling rain set in with heavy fog, and the humidity of the cellar reached 100 per cent. The temperature had gone down to 46, which we considered too low for so damp an atmosphere, so we installed an electric radiator to be used in connection with the fan. This brought the temperature up to 48 in five hours. We have not found it necessary to use the radiator since that time, as the first days of February have been clear and mild. The fan was kept running, and conditions in the cellar improved. The humidity averaged about 85 per cent. We opened a few hives and found considerable moisture, but no indication of mold, and the bees appeared to be in the best condition.

Sudden changes in temperature have very little effect on the cellar. About Jan. 9 the mercury outside dropped nearly 50 degrees in 24 hours, the only cold weather to date, Feb. 10. This did not change the temperature of the cellar one degree. Readings are taken from the recording thermometer every day. Only once has the temperature gone above 49, and then only one degree; 44 is the lowest mark registered, and this only three times. The fresh air is taken from the basement of the warehouse. This is warmed with exhaust steam during the day, but becomes quite cool at night; and at times when the doors are open in loading cars there is often a variation of 15 degrees

in a day in the warehouse, while the average daily variation of the bee-cellar is less than 2 degrees; and the greatest change in any one day was 3 degrees. This goes to show that a uniform temperature may be maintained by having a long narrow cellar with a large amount of wall and roof surface, all of which comes in direct contact with Mother Earth at a depth below the frost-line.

The earth covering our cellar is 5 feet deep at the center, sloping back each way to the level ground, and is 3 feet deep at a point directly over the side walls.

There are 376 full colonies in the cellar, and 18 hives, each of which contains two three-frame nuclei. This does not fill the cellar, as its capacity is 600 colonies.

Up to the present time there has been no disturbance among the bees. We visit the cellar for the purpose of taking the thermometer readings, and stay several minutes looking in at the entrances and noting the general condition. This is done with a flashlight, and scarcely a bee leaves the hives, while the amount of dead bees on the floor has not been more than a quart.



ONE HEARS THE GREETING, "A fine day, Sir," very often in California in spite



"A Fine Day, Sir!"

of the fact that almost every day is a "fine" day, and all days are alike.

The days of cloud in southern California are about as rare as the days of sunshine in the Great Lakes region where the editor came from. What, then is the significance of the remark in this land of perpetual sunshine and fine weather? The editor has figured it out this way: It is a habit acquired from the East, or that part of it where for a month at a time during winter the overcast leaden skies seldom let the sun take even a peek at us. A cracker of Florida once said to us in his native drawl, "The folks heah ah frum evawha else." If that observation fits Florida it is certainly applicable here. Small wonder, then, that tourists (and the towns and cities are full of them) offer the salutation of the East that has some significance back home, but which means little in this land of sunshine.

But as soon as the sun goes down, the temperature begins to drop; and during the night it is cool enough so that two or more bed-blankets are none too much, and a real steam radiator, with real steam in it, is very welcome till old Sol warms things up again.

This naturally brings up California's winter problem and packing. Some of the old-time beekeepers aver that there is no such problem. The editor and some of the very best beekeepers here agree that there is. It is "different" from the one in the East, it is true; but it is here nevertheless. The warm days and the cool nights, going down almost to freezing and sometimes below it,

are hard on the bees. The warm days stimulate the bees to activity. They fly to the fields, gather some pollen, and sometimes a little nectar. Breeding starts. The bees in the single-walled hives try to protect the brood. Some of it chills, and then comes the foul-brood scare. The fine days take a heavy toll on the adult bees, while brood-rearing may or may not replenish the loss. The editor has actually seen colonies go backward. The net result of these warm days and cool nights is an enormous consumption of stores, a reduction in bee force that means unpreparedness for the orange flow in the spring.

Geo. S. Demuth of the Bureau of Entomology, Washington, D. C., in one of his short-course talks, referred to the need of stronger colonies and greater preparedness for the orange flow in the spring. It was his opinion that much greater yields of orange honey, that is always in demand at the highest prices, could be secured if the colonies could be made strong enough at the opening of the flow. Some of the good beekeepers in the State see this, and are getting crops of orange honey. When the winter or spring weather is not too cold, accompanied with light flows of early honey and pollen, the bees will build up so that they are ready for the orange bloom; but when the weather conditions are not right, then is the time that the beekeeper should give his bees a lift. That means windbreaks ample enough to shut off the cold breezes. It also means warmer hives. It is a question whether, with this constantly changing temperature between day and night during winter and spring in California, packing would not pay and pay well. This can be given in various ways—namely, by using outside packing cases that can be removed in the spring, or using a 13- or 20-frame hive. By leaving out four or more frames of the last-mentioned hive, packing could be put into the space made vacant, thus providing side protection. A telescope cover with an inside cover is always much warmer than the cheap single-board covers so commonly used in the State.

M. H. Mendleson of Ventura, one of the pioneer beekeepers of California, and one of the most extensive as well, said he had proved to his own satisfaction that packing, even in California, pays.

May we suggest that some of our California readers try out a few colonies packed alongside of other colonies, of like strength, not packed? See that both the packed and the unpacked are equally well supplied with stores and good queens. If you do not see a marked difference in favor of the packed colonies in point of strength and honey actually taken from the orange bloom, we shall be surprised.

It is our humble opinion—an opinion that is supported by the experts in the Government service, that packing in moderate amounts would be a splendid investment, not only in California but in other tropical and semi-tropical climates.

THIS valley is one of the most productive areas in all the world. The very fact that it has more than 100,000 acres of alfalfa and nearly an equal acreage of cotton makes it a bee paradise indeed. There are between six and seven cuttings of alfalfa a season, with the result that the blooming periods come on at intervals often enough to make the keeping of bees worth while. Since the price of cotton has gone soaring, vast acreages have been grown in the valley during the last two or three years. While cotton is not as good a honey plant as alfalfa in point of quantity, yet one beekeeper has secured 1,000 cases of 120 pounds each from about 1,100 colonies. This was mainly cotton honey. At an average price of 20 cents a pound it would make the gross value of the crop around \$24,000, notwithstanding that not one scintilla of value was taken from the main crop of cotton that was used to help clothe the world during the past great war.

I am told that cotton does not yield honey in all sections of the valley; but that it does yield, and yield heavily in some parts, a good grade of light-colored honey, is very clearly attested by W. W. Culver of Calexico.

I had the pleasure of looking over acre after acre covered solid with bales of cotton. I was told that there were 65,000 bales at an average value of \$125, ready to be shipped. It is indeed a most wonderful exhibit of productiveness of the soil in this valley. If the cotton production continues from year to year, it will mean that Impe-

IN THE IMPERIAL VALLEY

The Bee Paradise of California. How the Big Beekeepers There Carry on Their Business

By E. R. Root

rial Valley will produce immense quantities of cotton honey. But I learned that as soon as the price of cotton begins to go down the acreage of the plant

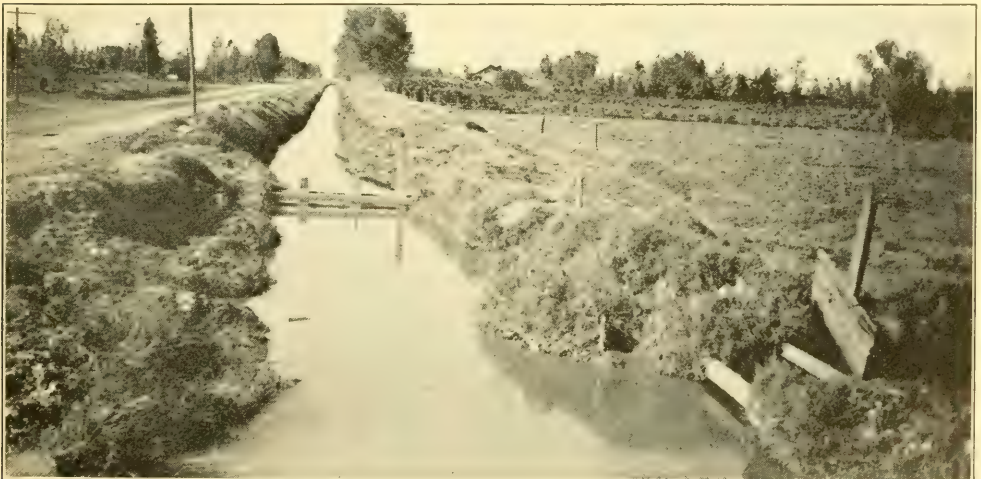
in the valley may be very materially decreased because the growing of alfalfa, under normal conditions, is more profitable.

There may be some questions raised as to why I speak of the Imperial Valley as the bee paradise of California. I base my statement on the fact that the relative yield per colony is not only greater in this valley, but that the crop, year in and year out, is almost absolutely sure. In other parts of California the yield per colony will not average above a can of honey, or about 60 pounds. Moreover, the seasons are more or less uncertain. I am referring now particularly to the territory within a hundred miles of Los Angeles.

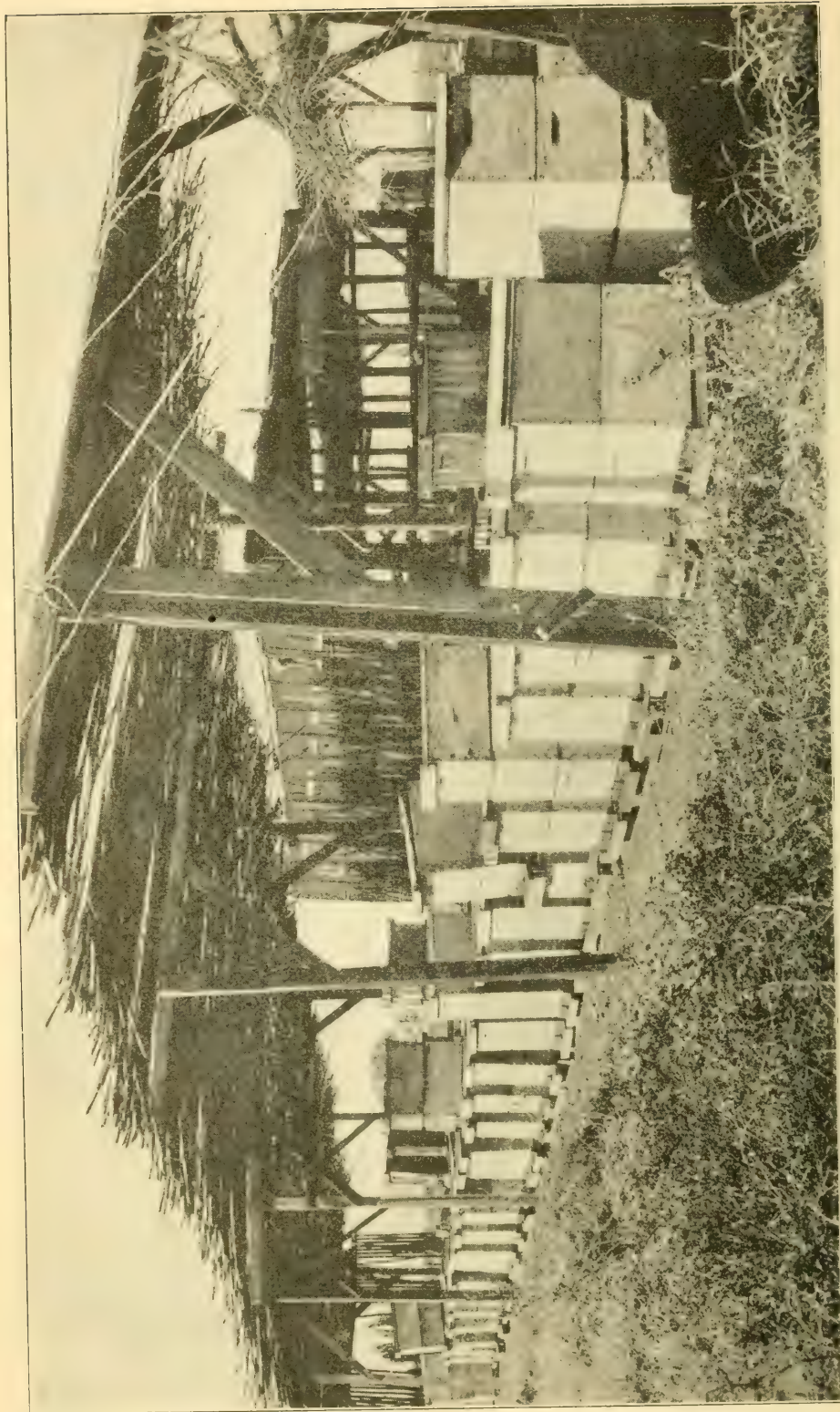
As we go further north, however, the seasons are more dependable; but I shall have occasion to refer to this in another article.

Going back to Imperial Valley, it is but fair to state that a case per colony is considered maximum—the average being, perhaps, about 75 pounds.

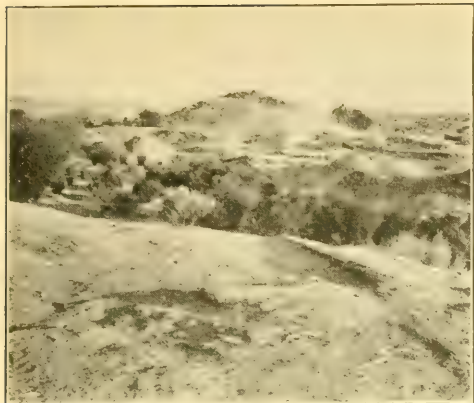
The color of the alfalfa honey in the valley ranges from an amber to a light amber; and the flavor, while excellent, is not quite the same as the light-colored alfalfa honey produced in Colorado and Nevada. Why this is so, no one seems to know definitely; but W. W. Culver of Calexico suggested that the difference in flavor may be due to the fact that the alfalfa honey in the valley is modified by other sources.



One of the main irrigating ditches of Imperial Valley. The water contains so much of silt from the Colorado River that the ditches fill up and have to be cleaned out with dredges. This is why the embankment is so high on either side. These main ditches feed the lateral or smaller ditches that irrigate the individual ranches.



Shedded apiary belonging to John Nippert at Imperial. This shows the arrow wood and how it is fastened down by means of wires on the framework. The extracting-house is virtually a screened-in building and is situated between the two lines of sheds, only one of which shows. This apiary was for sale recently at the price of \$20.00 per colony. Mr. Nippert said he could not sell it for less, as the bees actually gave him \$20.00 worth of honey per colony last season, and he has the bees and the equipment left.



Unimproved desert land in the Imperial Valley. The soil is so soft and fine that the wind blows it into hillocks around the brush. This land will be made available for cultivation as soon as irrigated.

In case the acreage of cotton should grow less, the acreage of alfalfa will grow more. In that event the yield of honey would probably be increased.

At present there are nearly 600,000 acres under irrigation in the valley. There will be about 300,000 more made available as soon as new irrigation plans are completed. At present there are only a little over 400,000 acres under cultivation, of which about 200,000 are devoted to the growing of plants that yield honey.

All told, there is something like 15,000 colonies in the valley, with about 50 or 70 beekeepers. It will be readily seen that from this ratio there are very few backlot beekeepers. Most of them are producing honey on a commercial scale.

Practically all of the available bee-ranges are taken up with bees and beekeepers. There is no chance for a new man to come into a territory unless he buys out some beekeeper. I know of only one who will sell

out, and that is only on account of age, the rest of them preferring to stay in the business because it pays to keep bees in this valley.

Foul brood has got a strong hold in the valley. Three years ago the disease was well under control; but it appears that one beekeeper went to the Board of Supervisors and told them that they did not need an inspector, or that they were paying too much for him, with the result that the appropriation was cut almost to nothing, and inspection all but discontinued. Disease, in the mean time, got a strong foothold.

Just before I left I was invited by J. W. George, the pioneer beekeeper of Imperial Valley and one who has done so much to advance the industry, to appear before the Board of Supervisors of the county. Mr. George made the main plea and I followed. He went on to show that the disease was getting a big start in the valley, and that unless something was done at once the hon-



Hives owned by John Nippert at Imperial, Calif. It seems to be the practice during the winter thruout California to contract the entrances of the colonies down to a very narrow space that will admit not more than two or three bees at a time. There are two reasons for this. One is to conserve the heat of the colony, and the other is to check robbing. Most colonies are wintered in two-story hives, one of the stories containing the stores and the other the colony.

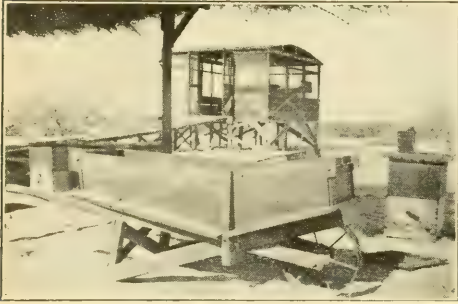


Shedded apiary of W. W. Culver near Calexico, Calif. This is a typical example of a shed covered with arrow weed. Wires placed over the top bind the weed so that it does not blow off. This particular apiary, says the owner, always gives him good yields because it is splendidly protected by the windbreaks of the trees on the north and the east,



Something of an idea of the cotton industry and of the productiveness of the soil can be gained by looking at this picture where there are 65,000 bales of cotton stored in an open field; it rains only about once or twice during the entire year in the valley. This cotton will be shipped before it gets wet down.

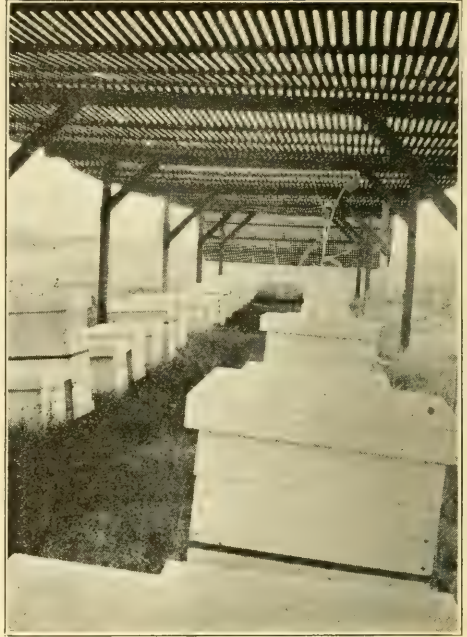
ey resources of the county would be considerably cut down. The Board was asked to appropriate sufficient funds to hire a competent inspector to work for nine months in the year under Mr. George, who had been giving and would give his time, free of



W. W. Culver's handy wheelbarrow for carrying combs from the hives to the extracting-house standing up on stilts, in the background. The shape of the wheelbarrow is so designed that the weight of the combs is thrown forward upon the wheel. Mr. Culver has his extracting-houses off to one side and elevated so that the honey runs by gravity into a large galvanized tank below. He prefers to wheel the honey up an inclined sidewalk to the building where the honey can be run by gravity into the receiving tank.

charge, as chief inspector. The petition was granted and the funds appropriated. There is every reason to believe that foul brood will now be definitely held under control.

From the illustrations given herewith it will be seen that all apiaries, on account of the extreme heat of the summer, must be



Shedded apiary belonging to F. J. Severin at Imperial, Calif. The slats are placed upon a framework and spaced about $\frac{3}{4}$ inch apart. This arrangement breaks up the rays of sunlight, giving just the right amount of shade and at the same time allowing enough light so the beekeeper can see eggs in the combs. These sheds can easily be taken down and moved to a new location, while the sheds having grass or weeds for the top cannot be moved readily.



One of the apiaries of W. W. Culver situated between two rows of eucalyptus. There is a little too much of shade, probably; and the owner may move the bees and put them under a shed, in which case, he would prefer the lath covering to the arrow weed.

kept under shade. The usual form is a shed covered with dried grass, or what is technically called arrow weed. This shed runs nearly east and west; and during midsummer, with the sun directly overhead, the bees are in the shade from morning till night. During the winter and early spring, the sun, being at a lower angle, strikes the hives all day long at a time of year when it is needed. The arrangement is ideal for hot climates. It is also used in Arizona, New Mexico, and the West Indies.

In place of arrow weed a number of beekeepers of the valley have found that common lath (such as is ordinarily used in plastering) is not only cheaper but better. It is actually cheaper to buy common lath at \$8.00 per thousand than it is to hire a

man, if you can get him, to cut the arrow weed, haul it, and fasten it upon the framework of the shed. As will be seen by the illustrations, the laths are nailed $\frac{3}{8}$ inch apart upon the frames. This is better than a solid top. When the rays of the sun are broken up it answers the purpose.

J. W. Culver, as will be seen by one of the illustrations, is trying the experiment of putting one apiary between two rows of eucalyptus. He does not believe this will give as good results as the shed.

J. W. George of Imperial, Cal., and W. W. Culver of Calexico, near the Mexican border, are the two leading beekeepers in the valley. Mr. George has been gradually retiring, while Mr. Culver seems to be in the business as much as ever.



OF the four or five months that bees are in the cellar, the month of March is the most destructive to their vitality.

This is especially true if the stores consumed during the winter have been inferior or if the temperature of the cellar during the earlier portion of the winter has been too low. During our earlier experience in cellar wintering we too frequently had both of these conditions in considerable degree, which, in every case, caused some extremely anxious days during the month of March on account of the restlessness of the bees. We have had many colonies that consumed more stores during March than during the entire previous period of confinement in the cellar. This meant, of course, that the bees were burning out their lives rapidly by the extra activity which was induced by their discomfort.

This extra activity serves no useful purpose whatever, and, when once started the destruction of vitality and the consumption of the honey from which the extra energy is derived go merrily on with constant acceleration until the hives are placed on their summer stands and the bees have had a cleansing flight. In such cases the condition of destructive restlessness has overtaken the bees before the arrival of spring.

Some years ago many beekeepers advocated setting the bees out when they became restless, choosing for this a day suitable for a safe cleansing flight, after which they were returned to the cellar. This was intended to stop the rapid destruction of vitality during the latter part of the winter. Fortunately, it is possible by using better stores and keeping the cellar warmer, especially during the early part of winter, to prevent this condition instead of applying

TAKING BEES FROM CELLAR

*When and How it Should be Done
for Best Results. Varying Conditions
Require Varying Treatment*

By Belva M. Demuth

a doubtful remedy after it develops. Midwinter flights, therefore, are now recommended. However, the beekeeper who attempts to

winter on poor stores in a cold cellar has reason to "Beware the Ides of March," for restless colonies previous to the arrival of spring present a serious problem.

Restless Colonies Weaken Themselves.

If they are placed on their summer stands at this time, on a day suitable for a cleansing flight, they will quiet down and may still have sufficient vitality left to care for brood to produce bees enough to take their places; but, if the restlessness previous to their removal from the cellar has greatly exhausted their vitality, they may spring dwindle badly and therefore be rendered useless for the season. Their subsequent safety and prosperity depend upon how nearly their vitality has been exhausted before they have had their cleansing flight and the character of the weather after they are set out. If they are left in the cellar, they burn out their lives rapidly by ceaseless and increasing activity. A good cleansing flight stops this useless activity, but we know of no remedy that can restore the exhausted vitality of colonies at this time except brood-rearing. Brood-rearing itself consumes bee life rapidly, and there may not be a sufficient amount of vital energy remaining to apply this remedy in time to save the colony.

When the Cellar's Usefulness Ends.

Colonies that are but slightly restless during early March may usually be left in the cellar until the arrival of favorable weather and the advent of natural pollen. However, when the time arrives that the bees are wasting their energy in the cellar more rapidly than they would spend it to keep up

the temperature of the hive out of doors, they should by all means be put out on the first day suitable for a safe flight. The only reason for putting bees in the cellar at all is to conserve their energy, and when it no longer does this they are better out of doors.

Finally, colonies that have wintered well (i. e. have lived slowly) will usually remain quiet thruout March, and even thru the greater portion of April, if they should be left that long. They gradually become more sensitive to higher temperature and stagnant air in the cellar, but are sometimes so quiet that we have hesitated about taking them out even when natural pollen was available.

Thus, while successfully wintered colonies, retaining nearly the full measure of their vital energy of the previous fall, are abundantly able to endure the cold spells of early spring if put out early, their continued quiescence makes it unnecessary to remove them from the cellar until the arrival of more favorable weather. The problems connected with removing the bees from the cellar successfully are much less exacting when they have wintered well than when they have not. The time for setting them out, the character of the day, the importance of immediate flight, and all of the precautionary measures to prevent drifting become less important with better wintering.

Remove Two Months Before Honey Flow.

We have a few times left such quiet colonies in the cellar as an experiment until late in April, with the idea of escaping all of the disagreeable weather of early spring. We found that they were, on June first, considerably behind the ones removed from the cellar about April first. Our honey flow usually begins about the first of June, so we want every colony ready for business at that time. It seems to require about two months after being removed from the cellar to build up for the honey flow. We, therefore, want our colonies on their summer stands not later than April first in order to have two months of brood-rearing before the beginning of the clover-honey flow. In practice, the bees have usually been put out the latter part of March. They sometimes have to endure some disagreeable weather after being put out; but strong colonies, well wintered, are abundantly able to do this.

This fits in well with the old rule for taking the bees out of the cellar at the time of the blooming of the soft maples. Restless colonies may sometimes be taken out earlier to their advantage, and no colonies should be left in so long that they will have less than two months to build up for the honey flow.

The Drifting Problem.

We have had almost no trouble from drifting, except one spring when the bees were taken out on an abnormally warm day without the usual preliminary airing of the cellar. The bees rushed out pell-mell without marking their locations and drifted badly.

Ordinarily we leave the cellar door and ventilator wide open during the night previous to setting the bees out. When this is done the bees are quieter and much more easily handled the next day. They are less inclined to fly from the hives while being carried out and are less eager to fly after being placed on the summer stands, thus greatly reducing that first mad rush from the entrance, which is almost sure to be followed by drifting. A wet cloth for closing the entrances of unruly colonies while the hive is being carried out is sometimes needed; but when the bees have wintered well, and the cellar has been thoroughly aired the night before, the bees may be carried out without its use. As each hive is placed on its summer stand the entrance is contracted. This, we think, helps to prevent drifting since it restricts their flight. Anything that in any way tends to reduce the volume of flight, when first set out, diminishes the tendency to drift. Good wintering, a thoro airing of the cellar the night before, careful handling of the hives while carrying out to prevent too great a disturbance, and contracting the entrances at the time of placing the hives on their summer stands should prevent any trouble from drifting. We do not attempt to place the hives on the same stands they occupied the previous fall.

Setting Bees Out When Too Cold.

We formerly waited for a day suitable for immediate flight for setting the bees out, selecting, if possible, a bright warm morning with prospects of a temperature of 60 degrees or more during the middle of the day. The bees were taken out as rapidly as possible in order that all the colonies could have a good flight before evening.

Latterly, however, the bees have been taken directly from the cellar to the outyards on days too cold for them to fly. The entrance screens are put in place while the hives are in the cellar and the loading is done at the cellar door. In this case, it is sometimes several days before a suitable flight day occurs, tho we try to do this on the day preceding a flight day.

This method eliminates much anxiety in trying to choose a suitable day, saves considerable hustle and worry in getting the bees all on their summer stands early in the day, and saves one handling of the hives intended for outyards. It has worked out highly satisfactorily with us when the bees have wintered well, but we would not care to try it on poorly wintered colonies. Well-wintered colonies quiet down after the disturbance of moving and do not attempt to fly until a day suitable for safe flight occurs when they fly normally. We have not been able to detect any evil results when such colonies have been outside a week or more before having their first flight.

Removing the bees from the cellar marks the closing act of wintering. It is but one of a succession of events which began last

August. Its successful performance depends largely upon how each of the others has been done. Colonies that have been properly wintered can be set out on almost any kind of day the latter part of March or first of April, and only the simplest precautions are necessary to prevent drifting. If they

were alike in strength and vigor in September, they should be alike now. How different it is with colonies that have not wintered well! With these the greatest care is necessary at this time, and no amount of skill can retrieve a situation lost earlier in the march of events.



ANOTHER BIG-HIVE IDEA

*Thirteen-frame Hive for Brood-chamber with Eight-frame Supers.
Saves Much Time, Work, and Cost*

By Harry Hewitt

THE subject of larger hives is continually cropping up in our bee journals, and during the last few months has been a noticeable feature in Gleanings and the American Bee Journal. The merits of the long-idea, the 10-frame Dadant, the 10-frame story-and-a-half permanent brood-chamber have all been discussed, and next came the description of Adams & Myers' 13-frame barns.

The size of the hive is probably more a question of location than anything else. In this locality the 8-frame hive is almost universal, and a great many successful apiarists are perfectly satisfied with its use. Personally, I believe that our 8-frame hive with good combs will turn out plenty of bees to handle the majority of flows, and I cannot think that big brood-chambers have as much influence on swarming as is claimed; for I find that colonies where the queen has the run of two and three sets of combs are just as apt to swarm as where the queen is confined to one set with an excluder. My record for the past season also shows that the heaviest yields were from queens confined to eight combs. In this locality it is not always best for our queens to raise a maximum number of bees, for many of our flows are of short duration and are followed by periods of honey dearth. In a normal orange flow it is only the eggs laid during the first week that are of any value in securing the crop, and, should the queens continue laying to their maximum capacity for the succeeding two or three weeks, they will produce an enormous force of bees that will be consumers and not producers during almost the entire period of their field life.

Altho I consider an 8-frame brood-nest ample for the needs of this locality when in the hands of an experienced beekeeper, it has its drawbacks when in the hands of a beginner, for there is the danger of taking away too much honey and allowing the bees to starve. This, however, is always the fault of the man and not of the hive. Another failing, which applies equally to the 10-frame hive, is the difficulty in getting at the brood-nest when it is tiered up three and more stories high. Many colonies are allowed to run down, or are lost for no other

reason than this inaccessibility of the brood-chamber.

I cannot remember for what purpose I made a square hive, 13-frame, about four

years ago; but it has proved its worth to such a degree that my future permanent outyards will be equipped with these 13-frame brood-chambers. Do not think I am inconsistent in adopting this big brood-nest after my remarks about the 8-frame hive, for I am doing it not to give the queen more room but to save time and a great amount of heavy lifting. My object is to stick to the handy 8-frame equipment and at the same time have the immediate accessibility



Hewitt's 13-frame brood-chambers with 8-frame supers, showing accessibility when inspecting the colony.

of the brood-chamber enjoyed by the users of the long-idea hive. The photographs show, better than any description, how this is obtained. It is true that only four frames can be taken out and one side of the fifth seen; but these five frames will invariably show the condition of the colony.

This may appear an outlandish shape for a beehive, but its advantages are manifest, and it would solve the problem for those beekeepers who desire a bigger brood-nest, but who are afraid to make the change because the cost would be prohibitive. The only additional cost would be for hive bodies and bottoms, and for the bodies only new rabbeted ends would be necessary.



The Hewitt combination hive, showing cover on brood-chamber and outside view or arrangement for making a queen-mating nucleus.

Altho I speak of the square hive as holding 13 frames (as it will with $1\frac{3}{8}$ -inch spacing), this becomes such a tight fit when propolis has accumulated that it seems more practical to use only 12 frames and space them $1\frac{1}{2}$ inches. To cover the exposed frames a piece of 1×8 board is all that is necessary, for the bees speedily close up any cracks and make things weather-tight.

In the side of the hive shown in the

photograph, it will be noticed there is a hole closed by a cork above a small alighting-board. This shows another use to which this particular hive has been put. By using a tight-fitting division-board and closing the front entrance to where the partition comes, a two- or three-frame queen-mating nucleus is formed in a few minutes, and the bees and combs are returned to the colony by taking out the division-board when the nucleus is no longer required.

During the last few months many extensive beekeepers have visited my yard and most of them have noticed this big hive; but so far no one has recognized the conveniences to which its odd shape adapts it. All those who commented upon it would prefer to use the same size of supers and so eliminate the only advantage that appeals to me.

The advocates of the Jumbo frame and the story-and-a-half brood-nest lay stress upon the fact that a queen will place her brood in the shape of a sphere, and the deeper frame will allow this to a greater extent than the Langstroth. Altho this may be an advantage for a very short time in early spring, there is no necessity for it when the weather becomes warm and the colony populous. In bee-trees it is quite common to find brood-combs three feet and four feet long and only six or eight inches wide, and some of the swarms raised on such combs are the equal of any produced in a hive. The advantage of the square hive, used in conjunction with the 8-frame supers, will be not only in accessibility—and for outyards where quick inspection trips are desirable this is no small consideration—but in having the same standard frame in both brood-nest and super.



Beekeepers attending the recent California beekeeping short course at the University Farm, Davis, Calif.



ANNE LESTER AND DADDY LOWE, BEEKEEPERS



By Grace Allen—Chapter II

ONE morning March broke heavily over Daddy Lowe's farm. Wind and storm ruled thru that day, and the next, and the next, dying away at last into little protesting coughs against something young and warm that was coming. And on the fourth day there was blue in the sky and sun over all the earth. Daddy Lowe unbuttoned his overcoat, and walked around the syringa bush to tap on the window of the sitting room. "Come out, Anne!" he shouted.

"Can't, possibly," called a voice behind him. And there was Anne herself with three gay daffodils. "I wandered lonely as a cloud," she began, showing her treasure, "and you accuse me of being inside."

"You weren't among the bees," he protested, "and they're flying."

"Bees aren't the only thing in the world," she declared. "I wanted to see what the storm had done to the daffodils—they were all ready to come out when it struck them. And it hasn't hurt them a bit. Aren't they brave-hearted? That's what I love, Daddy Lowe—not just putting your lips together and being grim, and not being just patient and resigned, but being downright brave, like a daffodil, and when the storm's over, blossoming right on and being what you were meant to be."

"You are very young, Anne," the old man said gently. "That is the right way, but it's the hard way."

"Please don't say that, Daddy Lowe," she begged, as they turned towards the beeyard. "I never could endure that idea. Whatever's the right way ought to be the easy way, once we catch the hang of it."

Daddy Lowe smiled. "Once we catch the hang of it," he repeated, "yes. For that end came all the law and the prophets. Perhaps the poets, too."

"And maybe the daffodils?" insisted Anne gently. Then she stopped. From hive after hive the bees were streaming out into the sun. Their humming seemed suddenly to fill the world. For an instant she stood silent, a new look on her face, then she cried out merrily, "The bees too, Daddy Lowe! I believe this would help people get the little knack of being brave and big and doing the right things easily." Then suddenly, "Ah, now I know—this is how you got it!"

"But I haven't got it," he said, shaking his head. "The bees do help, but I haven't got that little knack! You little child—to call it that!"

"You can't make me angry calling me names on a day like this," she comforted him. "How near dare I go?"

"That's for you to answer," he replied, sitting on a hive. "But it is considered polite as well as discreet not to stand right in their way, in front of the entrances."

So Anne politely sat down on another hive, and for a long time it was very still, except for that one great humming, which is like nothing else in the world. Slowly the listening look deepened in the girl's eyes. But at last she turned to the man. "Daddy Lowe," she said, smiling, "I can see contentment hanging about you like a garment. But there is a bee crawling across my hand. Of course, I am not afraid of him, but how does one get rid of him—most politely?"

"One takes her up by her wings—so," replied the old beekeeper, skillfully taking possession of the bee.

"Her wings?" echoed the girl. "Are these all lady bees?"

"Yes," he replied, "there are no drones at this season."

"From which I deduce that drones are not ladies," she observed.

"Your deduction is correct."

"If I keep on deducing, will I know everything about bees, or are you going to tell me, all in order, like a real story?"

"You have never read Maeterlinck's 'Life of the Bee'?"

"No. I've read 'The Blue Bird' but not the bee. Must I read it, or will you tell me?"

"Well," he began, "in each of these hives, if things are normal, is one queen-mother. She never goes out to the fields, but lays thousands of eggs here in the cells of the combs. Her eggs are like tiny specks of ivory—each in the bottom of a cell—you shall see them later. There are two distinct kinds. One develops into drones, the other into either one of two kinds of females—either queens or workers. These are workers flying around here.

"It takes three days for any of these little eggs to hatch. Then they are tiny white grubs, or larvæ. The worker bees feed them, and they grow so fast that in about six more days they stretch out in their cells, and the workers cover them and leave them there. In about twelve days more, they gnaw their way out, bees. Most of them are these worker bees, undeveloped females whose chief business in life is work. They are the nurses, the housekeepers, the gatherers of nectar and pollen and the defenders of the hive. The males are truly drones, for they don't do any work at all."

"Stackers," scoffed Anne.

"So they are—they neither work nor fight. They are big and coarse and awkward, big eaters, good-natured but not very tidy. Usually there comes a time in late summer when their sisters think there is no longer any chance for any of them to mate with any young princesses, so they just kill them all off—usually by refusing

to let them in when they come home from some frolic out in the sun. So end most of the drones. That's why there aren't any this time of year."

"How can the same kind of egg make either a queen or a worker?"

"I wish I knew. Which they become seems to depend upon the food given to the larvæ. Most of them, oh, by far the most of them, develop into workers, but when the bees decide to raise queens, the food administration changes its regulations. They make the cells larger where the queens are to be—and when they finally come out they are beautiful, long and slim and golden."

"Have they wings?"

"Oh yes, wings like gauze, but strong and swift."

"Well, if they never fly out, I don't see—"

"They do fly out. When the young queen is about a week old, she takes her wedding flight. But after that she stays quietly in the dark hive, laying thousands and thousands of eggs, and practically never leaves the hive again, unless with a swarm."

"I know about swarms—they all go off and live in a hollow tree."

"Sometimes."

"Why do they go?"

"Usually because they have so many children they don't know what to do. So part of them, including the queen, move out."

"Then those that are left haven't any queen."

"They always leave young princesses in cells, ready to emerge soon."

"I see. Then they hatch out and there are plenty of queens. And is there anything else?"

"Well, there are a few details left! For instance, when those 'plenty of queens' hatch, either the first one kills the others, or they fight to the death, or the workers kill them—anyway, they have only one in each hive."

"Please don't tell me those queens fight! It does seem as tho queens really might be 'too proud to fight'. How much fight and struggle and killing there is in this world!"

She slid off her hive. "Oh, look at all these dead bees, in front, here!" she cried.

"And see the live ones dragging the dead ones out?"

"Yes, and there too! What makes them die?"

"Old age and weariness. They had to work pretty hard during the winter to keep warm. That wore out some of them, and some of them were old enough to die, anyway."

"How old are they when they're old enough to die?"

"Fall and winter bees live several months, some of them on into the spring. Summer bees wear themselves out in about six weeks."

Anne sighed. "This is a lovely world, but there's an awful lot of sadness in it."

They walked off together, slow and serious. "Where do you suppose our soldier boys are now?" she asked presently. "And what are they doing? Are they both still all right? And how soon will we hear from them again?"

The old man shook his head. "There is one thing absolutely certain about war, Anne," he replied quietly, "and that is that the ones at home will ask such questions a thousand times before they are able to answer them. Our part seems to be patience and resignation," he added, smiling.

"Well," she laughed, "I don't mean to criticise patience. Patience is all right when it's big and strong and fine—but I honestly despise what some people call patience. Half the time it's nothing but lack of spirit and grit. As for resignation, the word somehow gets on my nerves. It's not big enough. Whatever comes to me, I do hope I'll always be something bigger than just resigned."

Mrs. Lowe met them at the door. "A letter from Jack, Father!" she exclaimed happily. "I haven't quite worn it out reading it. He's in France somewhere. You have one too, Anne dear."

"Did he say anything about Robert?" Anne asked, seeing her own letter was not from her brother.

"He was still in England, the last Jack knew," Mrs. Lowe replied. "Too bad they couldn't have stayed together."

Anne eyed her letter suspiciously, then laid it aside. She opened it a little later, in her room. "O dear!" she exclaimed, flushed and embarrassed, after she had read it. "Now what do I do next?"

Neither the furniture nor the letter told her. "I know what I'm going to say," she explained to the silence, "but I don't know how to say it."

That evening, after many efforts, she finally evolved what seemed to satisfy her. "Now, Mr. Theodore Robinson, please, please, don't let me hear from you again," she remarked as she addressed the envelope. Then she drew the letter out to read once more. This is what she read:

"My dear Theodore: You are utterly mistaken. I was not torn away from home. I came here because I wanted to. And it's not a desert. It's a lovely farm, with little hills around the edges. I love it. There are bees here too, workers and queens and sure-enough drones, and bits of ivory eggs that turn into chubby white worms and then get wings and fly out and hum. I hate city noises, but this gets into your soul. I am always going to live in the country, where there are bees and daffodils and old men. So you see I can't very well marry you, Theodore. Please forget that you asked me. With best wishes, your friend,

Anne Lester."

(To be Continued.)

G. A.





IS IT A SAFE PRACTICE?

Two Beekeepers Who Do Not Approve Kight's Foul Brood Treatment

On page 21 of the January issue of *Gleanings* appears an article under the title, "Is it a safe practice?" The article describes what is called "the nursery method" of treating a "mild" case of American Foul Brood. Now, Mr. Editor, I am one of those "foul-brood inspectors" (we call them inspectors of apiaries out here in California) who does, most emphatically, question this "method of cure." I disapprove for the following reasons:

(1.) The method is in opposition to all the accepted scientific data we possess in regard to American foul brood. These data have been accumulated thru many years of the most careful and painstaking study and experimentation on the part of both scientific and practical beekeepers. Suppose it be granted, for the sake of the argument, that "some good beekeepers have tried the method with excellent results." I would answer that statement with the Editor's own words: "It is probably true that the disease may appear in some other combs." Is not that statement, in itself, enough to convince anyone that the method is unreliable?

A method that does not certainly eradicate disease, is not, and cannot justly be called, a cure.

Picture in your mind the condition of affairs that would exist in the apiary of the average beekeeper who tries to treat American foul brood according to this method. If it is a genuine case of American foul brood, even tho only a few cells appear, there is no doubt but that other combs will show the disease sooner or later. These combs will have to be looked for, found, and treated. The process must go on until the last vestige of the disease has been eradicated. The method of treatment resolves itself, finally, into a continuous performance in which, instead of eradicating the disease, the beekeeper is engaged in juggling diseased combs and colonies in the midst of a more or less healthy apiary.

(2.) My second objection for disapproving even the publicity of such a method of treatment of American foul brood is, that it tends to lessen the sense of danger and dread of the disease that should always exist in the minds of all beekeepers.

There are entirely too many beekeepers who treat the matter of brood diseases lightly. The author's views of the details of this method of treatment are bound to create, or encourage, the belief that foul-brood infection is not as contagious as careful inspectors say it is.

What is still worse; Mr. Kight's published endorsement of such unscientific methods tends to increase the number of those who are willing to hazard their own and their neighbor's interest for the sake of a doubtful experiment. If one man can try his little scheme of treatment and get by with it, why should not an inspector let every Tom, Dick, and Harry tinker with disease to his heart's content?

What is needed, in order to rid the country of the scourge of foul brood, is a wholesome dread of the infection—a dread that will prevent any such tinkering with disease as described in the article referred to.

(3.) My third reason for disagreement is found in the statement of the editorial note as to the people who are most likely to be benefited or injured by this publication. In my humble opinion, the "careless man" is the very fellow who is most likely to try the method. "The 'careful man'" will not try the method at all! Perhaps this is but the statement of personal opinion; in which case, the opinion of the authorities in bee culture would naturally outweigh that of a mere "foul-brood inspector." But if the opinion of an inspector is worth anything, it seems to me that it should be uttered in favor of more drastic treatment of all brood diseases; and that all temporizing, and much of the experimenting that is done, should be eliminated. The danger is not confined to the apiary that it infected, but menaces all the bees in the country.

Whoever called this treatment of American foul brood "the nursery method" is to be congratulated on his choice of a name. It is, without doubt, a nursery of the disease.

Robert B. McCain.
Inspector of Apiaries for Santa Barbara County, Calif.

An article entitled "Is It a Safe Practice?" telling of the mild cure for American foul brood, appeared in the January issue, page 21. May I venture to say from experience that it is not safe without one or two qualifications. Either the treatment should be employed **only** during a good honey flow, or else the diseased brood should be removed entirely from the flying range of the bees treated. With either of these conditions supplied one can effect a considerable saving by using this plan, provided you figure foul brood is with you, like "poor relations," to stay, and the effort is merely to keep it in check.

Here's a tip on foul brood that's worth remembering: If you are sufficiently afraid of it, it will not be liable to hurt you much; and just about the time you lose your fear of it, you are liable to get a pretty good jolt.

I decided once that I was not afraid of

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it any longer; so I stacked shook foul-brood combs in the same apiary with the treated bees, leaving enough nurse bees to look after the brood. This was during a brood-rearing honey flow, with a one-bee-way entrance. Shook bees will work almost like a new swarm, but they are much worse to rob. There were a few field bees left with the diseased combs that went back to the old locations, and evidently they did some robbing on the practically defenceless brood for some time. I had recurrences for a year thereafter. Now I have as much respect for foul brood as I ever did have, and a bit more of late, and I find I am not getting hurt much by it any more.

My location is almost isolated. I've cleaned up two yards entirely—not a cell for over two years. In the other two I have it down to less than 5 per cent. I would rather dig a hole and bury at night the whole blamed hive, bees and all, than take any kind of a chance of its spreading or recurring, for those two yards must be cleaned up, **entirely**.

But, now, if I had disease all around me and some throat my own bees, I would certainly use this method—but only in a good honey flow, unless I could start a hospital yard at a safe distance. I know what it's like to melt up a strong two- or three-story colony. But even so, I believe it safer, and I doubt the advisability of Mr. Kight's treatment for more than about one beekeeper in fifty.

T. W. Riggs.

Overton, Nev.

Mr. Kight Takes Exception to Mr. Holtermann's Comment.

On page 98 of February Gleanings, R. F. Holtermann says, "there are altogether too many beekeepers who now try to cure American foul brood that way." This was said in criticism of my article, page 21, January Gleanings, on the treatment of American foul brood. This criticism is an injustice both to the readers of Gleanings and myself, for the reason that he evades the main points at issue by talking about the "cut out" method when one can see that the nursery or hospital method was the treatment advanced. The cut-out method was mentioned only in the first paragraph of that article as being successful in one instance where the cells that were diseased were cut out. I would use the cut-out method only where there were but a cell or two that had American foul brood and confined to but one comb. If I had more than one hive diseased, no matter how limited, I would adopt the nursery method absolutely.

In reading Mr. Holtermann's criticism of my treatment and his brimstone method, one is led to believe he would advocate the extreme method in the cure of any contagious disease, whether in bees (or human beings).

Going back to the cut-out method that Mr. Holtermann talks about, I wonder what would be his advice to the surgeon should one of his family show symptoms of cancer in a leg or arm or any other part of the body where it could be reached with the knife; would he suggest to cut it out or cut the patient's head off as a sure means of eradication?

There are many things about the honey-bee to be learned, and I know of no better way than to experiment and adopt the methods most successful with the least possible loss.

J. F. Kight.

Indianapolis, Ind.

"GOING AHEAD BACKWARDS"

That's What a Big New York Beekeeper Says of Home Breeding of Queens

The extension workers of the U. S. Department of Entomology as well as many other educators in apiculture are urging beekeepers to rear their own queens rather than to buy them of the men who have been and are making a specialty of queen-rearing. Such stuff is not going to get us very far. For however advisable it may be for the beekeeper to raise his own queens, there is not one in three hundred capable of selecting stock whose progeny will maintain to any degree the qualities for which it was originally selected.

The rank and file of farmer beekeepers, whom the extension workers are trying to induce to "keep more bees," are, to say the least, not anxious to spend any money on their bees for good queens or anything else, and they are the ones who are going to bite, and rear their own queens because it is cheaper.

To raise good queens requires not only skill on the part of the beekeeper but also very favorable local conditions—conditions other than we have in western New York. The firm of which I am a member has spent hundreds of dollars in buying queens not only for their own use but also for improving the surrounding locality by giving queens to near neighbors and selling at reduced prices to those more distant and many times donating their own time for requeening. This has been practiced over ten years, and still we are unable to secure pure mating of one-tenth of the queens we rear for our own use. These mismated queens will often produce colonies that will outdo their ancestors, it is true; but were it not for the purchasing of two well-bred queens to each of these home-bred ones we would soon be out of the bee business, so far as honey production is concerned, for when it comes to the second and the third generations of these home-bred queens they are worthless.

We are still buying queens by the hundred

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and will continue to do so until conditions are much changed.

If beekeepers generally adopt this system of rearing their own queens, in less than five years we shall be back to where we started 25 or 30 years ago. Howard M. Myers.

Ransomville, N. Y.

[There are a great many "farmer beekeepers" who own quite a number of colonies, and who do not feel that they can afford to buy queens for their entire apiary. These people may be capable of rearing queens quite successfully; and I believe that it is much better for them to purchase one queen of good stock to use as a breeder, and raise their own queens, than to allow the bees to requeen themselves year after year, as is often the case. While these home-bred queens are likely to be largely mismated, they are enough better than the third or fourth generation of hybrids so that it will pay well to raise them.—Mel Pritchard.]



ANOTHER KIND OF WINDBREAK

Cornstalks Threaded in the Meshes of Woven Wire Do the Trick

During the past year the value of a windbreak has been so strongly presented both by beekeepers and our Government experts,

that I have been convinced of the necessity for one as a protection for any bee-yard. I had been thinking about windbreaks for five years or more and had planned one such as I would build, if I ever had occasion to

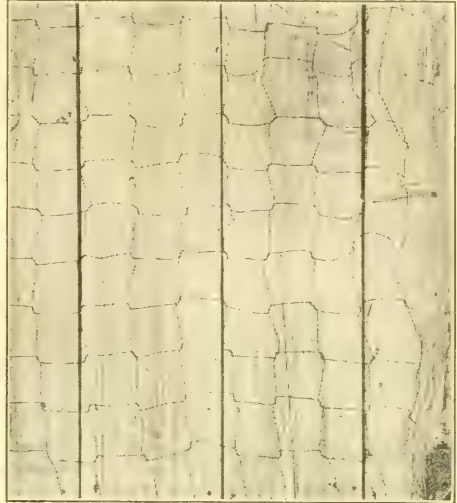


Fig. 3.—The kind of wire fencing used in making the cornstalk-fence windbreak.



Fig. 1.—View of Mr. Hassinger's apiary showing cornstalk-fence windbreak of different heights on two sides.

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use one. The idea was to build an ordinary woven-wire fence and to thread cornstalks or sugar-cane stalks thru the wires, threading closely enough together to break the wind without diverting it on to parts of the yard as a solid fence will do. Part or all of the stalks could be easily removed during hot weather, if desired, and later replaced.

I have built such a fence about my apiary for protection this winter, as shown by the photographs. It may be considered experimental and too young to crow about. However, the fence is cheap, and no one can lose much if it proves to be a failure. It is cheaper than a board fence, and it seems as

tho it must answer the purpose much better. It should also be more effective than an evergreen windbreak. It is there or not there, as you wish, and it is not taking the fertility from the soil, which may be of greater use in growing food products. It is a long wait, also, for the twenty-odd years' growth required by the evergreens. The stalk windbreak requires but little space and is not bad-looking, as the photographs show. If it is to be more permanent, grapevines, ivy, or morning glories may be planted and allowed to run up the fence, to add to its beauty.

Photos tell the story better than words.

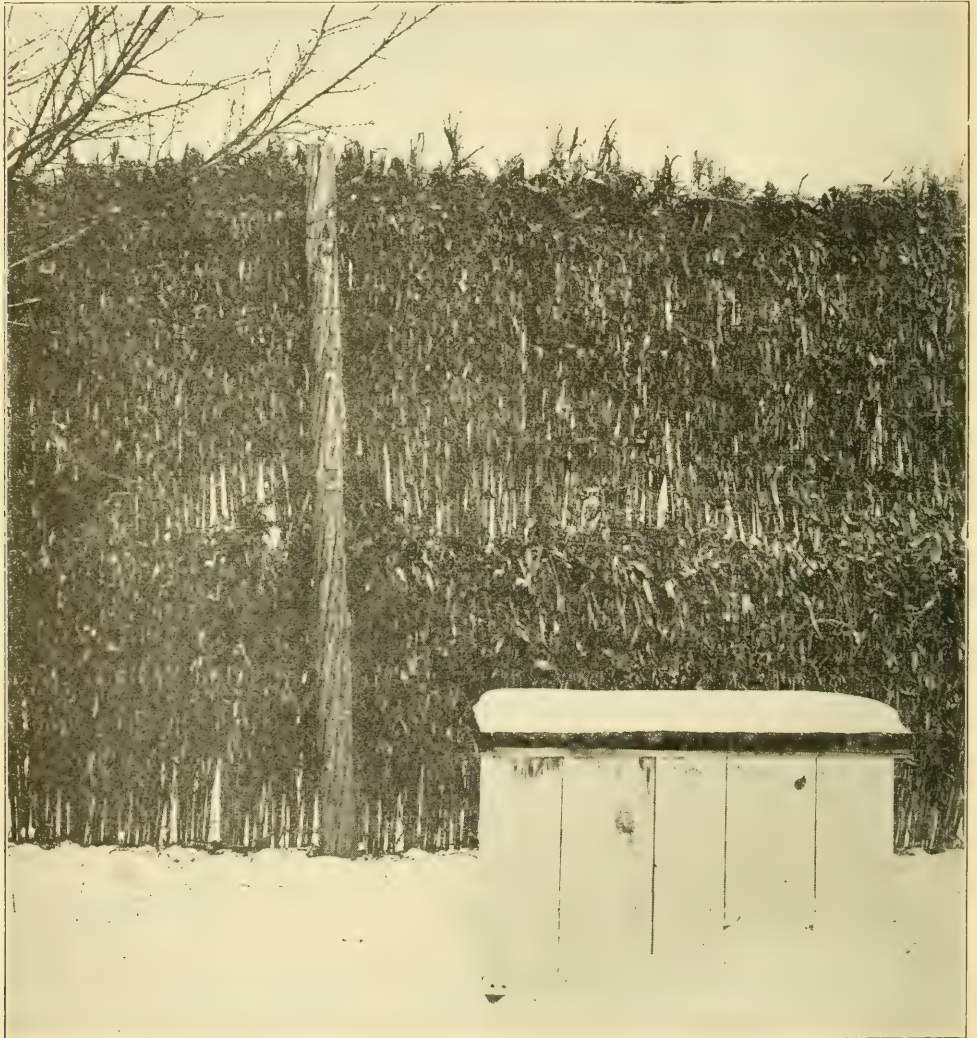


Fig. 2.—Hassinger's 12 foot high windbreak, made by using two widths of 6-foot wire fence, one above the other, and two lengths of cornstalks threaded into the wire.

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Figure 1 shows in the background the six-foot fence on the south and the east sides of the yard as well as the twelve-foot fence on the north and the west. Figure 2 shows the fence, which is 12 feet high on the north and the west sides of the bee-yard. The stalks were threaded into the wire from the outside between two wires near the top, one in the center, and two near the bottom, as a close view of figure 2 will show. The 12-foot fence consists of a double width of six-foot wire and two lengths of cornstalks.

Perhaps almost any kind of woven netting would answer the purpose, but figure 3 shows a close view of the kind I used. Notice the twist, the nature of which is such that there is plenty of slack to press the wires and to make room between them thru which to pass the stalks. The wire was listed as poultry and rabbit netting by a mail-order house. Wire six feet high, heavy grade, comes in ten-rod bales at 66 cents per rod. The space between the wires is $1\frac{1}{8}$ inches at the bottom and $4\frac{1}{4}$ inches at the top. With this wire the stalks are easy to thread. The wire plus the labor and stalks and second-hand telephone poles at 70 cents each made me a cheap windbreak.

Edward Hassinger, Jr.

Hortonville, Wis.



QUEEN-REARING—DOES IT PAY?

Perhaps Not in Dollars, but in Acquirement of Bee Lore It Does

Since no method has yet been discovered whereby nectar can be gathered and converted into honey by machinery, man has concluded that the life and prosperity of a hive depend upon a virile and protected motherhood. Otherwise, worker bees, which already are carrying pollen and nectar in loads many times their own weight, making wax, building cells, nursing younger sister bees, and doing military duty, would no doubt be spending their odd moments in reproducing the species.

Artificial queen-rearing, like other stock-raising pursuits, is only another version of making two blades of grass grow where only one grew before, with the additional object of improving the stock by breeding only from the finest strains. Therefore, when the new firm of beekeepers became established, an Italian breeding queen was purchased from which to requeen the apiary and to provide queens for prospective new colonies.

Of the 415 cells grafted, 109 were capped or accepted. Of these, 20 failed to hatch, and were found, fully developed, dead in the cells. Of the 89 that did hatch, only 36, less than half, mated and began laying. The other 53 virgins were lost, presumably on their nuptial flights, the majority proba-

bly being ambuscaded *en route* by yellow-jackets, which increased to an army more and more formidable as the season advanced. The voracious insects became a pest in dwelling-houses, and a menace even to pet animals—dogs and cats often being deprived of their rations by a sudden visitation of the yellow peril, which, without a by-your-leave, would swarm over the food and carry off the meaty portions. Against such an enemy the virgin queen is defenseless—six veteran bees, according to the observations of a statistically inclined beekeeper, being required to vanquish one yellow-jacket. The beekeepers of England, especially near London, are said by those familiar with apiculture in that country, to suffer greatly from losses caused by the yellow-jacket pest.

A total of 36 queens, altho a small result for a season's work, and only 33 1/3 per cent of the 109 cells capped, and 8 per cent of the total number of cells grafted, was still a sufficient number to requeen their small apiary, had not fresh disasters, not mentioned in the books, befallen them. At the end of the season, artificially reared queens in hives and nuclei numbered only 28, the other 8 queens having met their death during the delicate operations of caging and introduction; 2 died in cages, together with their attendants, while in transit from nuclei to their permanent homes in regular hives. An inquest was held. "Sun-stroke" was the verdict, based on the expert testimony of a beeman who learned that the cages had been exposed to the sun during the short time necessary to open the hives and spread the frames preparatory to introducing the queens. There being no other logical explanation, the verdict was accepted.

But the same expert had nothing definite to offer when a beautiful golden queen was found lying dead in front of a hive two days after introduction. He said that bees would sometimes release a queen by eating thru the candy, and then execute her; but he could offer no satisfactory explanation for such conduct. A few days later another queen met the same fate, and the hive was finally requeened only by giving to it a frame of brood from which the colony produced a queen more to their liking.

Beginners are more or less prepared by reading for the eccentricities of royalty. "The books say" that young queens often return to the wrong hives after their mating-flights, and that others are nervous and restless when the hive is opened for inspection; but no account of a queen emerging from a hive at one end of a row and returning to the hive at the extreme other end, as the first young queen did, has ever been noted in literature. There were 19 hives in a row. In hive No. 1 the queen was due to begin laying, and the frames were inspected for eggs. None was found, and a diligent

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search failed to locate the queen. In hive No. 19, queen-cells had been placed only a few days before. These were intact, altho a fine mature Italian queen was in full possession of the hive. All our other hives, with the exception of No. 1, being either queenright or supplied with cells not yet ripe for hatching, it was evident that the queen on her nuptial flight remembered that her hive was situated at the end of the row, but had neglected to make a memorandum as to which end of the row it stood. Matters were evened up by removing from hive No. 19 the frame of brood containing the queen-cells to hive No. 1, left queenless because of its young queen's defective bump of location.

Again, the books say that a queen begins to lay in from five to ten days after mating, and that if delayed beyond that time she is likely to become a drone-layer. This particular queen waited three weeks. She then filled her hive in an amazingly short time, and, following a second call to adventure, swarmed out in August, three months after she was discovered to be in the wrong hive. Unfortunately the swarm was lost and with it the closing chapter of the queen's life history.

The history of hive No. 1 was no less turbulent. The bees would have none of the strange queen-cells from No. 19, but proceeded against them with systematic destruction. When the lower part of one of the cells (the part next the comb) was eaten away, a worker bee was seen to sting the exposed abdomen of a virgin queen which was struggling to free herself, but whose head was still imprisoned in the unbroken tip of the cell. We then introduced cells in wire protectors, but in each instance the queen would mysteriously disappear. Meanwhile, laying workers developed. The frames containing the brood were judiciously distributed among the strong colonies of the apiary, on the theory that the laying workers would remain with the brood and so be overpowered by the bees in the stronger colony in which they were placed. After a three-months' struggle the hive was successfully queened.

Three cases of balling were experienced. One queen managed to disentangle herself; and, the cover being off the hive, she flew away. Whether or not it was her nuptial flight is not known. At any rate, on the next visit she had returned to the hive and eventually became the mother of a large colony. The two other queens were rescued and placed in nuclei (by introducing in the usual manner) in order that they might have every chance of recovery. One died, and the other degenerated into a drone-layer.

Estimated strictly in terms of dollars and cents, no one could possibly figure a profit on the firm's first season in queen-rearing.

The hard-headed business man would say to a beginner, "Buy tested queens from a reliable breeder, and save money and time."

But the new firm is neither hard-headed nor businesslike. Indeed the individuals who compose it have scarcely enough sand between them to dethrone a reigning queen, no matter how black or otherwise undesirable she may be, to make room for one of their own new queens.

As to business, however, the ambition of the firm to master the technicalities of beekeeping outweighs even the very human desire for immediate monetary returns; and for one who would learn quickly the handling of frames, the control of strong colonies, the wonder of their busy existence, the habits and the intimate family life of the bee, artificial queen-rearing is the shortest and surest route. C. D. Stuart.

Los Gatos, Calif.

HOW HE BEGAN BEEKEEPING

A Naive Statement of a Beginner's Surprises and Experiences

Year before last, a swarm of bees alighted on a lumber truck near where I was working. One of the men took a soap box and set it under the swarm, picked up one end of the truck, slammed it down, and right there my beekeeping started.

Just four days after this, another swarm alighted within a hundred feet of me while eating my lunch at noon. In five minutes I had them in another box. Now, I had always wanted to keep bees, but I did not know what to do with my captives. I looked at the pictures in the books. How was I to get those little square boxes on to that hive? Finally, I got a beeman to look them over. "Oh," said he, "you must get a hive and dump them out into it."

Now, that was a stickler; but I wanted those bees, and so I sent to town for a hive and got it. Those bees had been in the old boxes for seven days. Then it was that the fun started. I got a woolen blanket, and then pulled off the board top. About half a bushel of bees hung to the top. I was surprised to get about 50 stings, but was bound to get the bees. I did not know a thing about the queen. All this happened about 6:30 in the evening. After dumping out the bees, I left them on the ground. In the morning they were still clustered around that new hive, refusing to go inside. I told the beeman about them, and he asked: "Did you put the queen in the hive?" I replied: "Queen be hanged! What is the queen?" He said: "You must get the queen. She is a large bee, the boss of the hive, and put her in the hive."

Well, when the whistle blew that evening I hurried home. The bees were still bunch-

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ed up on the hive. "Now for the queen," said I, and began pawing the bees over, getting a few more stings to help out. At last I caught her. It was easy to recognize her. I put her in the hive, but did not know enough to clip her wings. I thought that all I had to do was to put her in and the rest would follow. No. I gathered up all that I could and put them into the hive and went to supper and then to bed. Next morning I did not look at them before going to work. At night I hurried home and went straight to the new hive and lifted the cover very carefully, and, lo! there was not a bee inside. All were gone.

Well, I took up the blanket and felt very wretched over the loss. I kicked the hive and then sat on it and began to think. My soap boxes were working with a will. Would I try to put them in the new hive? I would not. They would stay where they were. In fact, I did not know what to do, and so I hunted up another beeman. Now, do not think badly of these beemen in this neck of the woods. Maybe they are all right. This one advised me to let the bees fill the box with honey and then kill them.

Kill those bees after they had filled the box! Well, I guess not! This beeman went away without my blessing. When he told me to kill those bees I took my jackknife and worked around the cover of that soap box, and when I got it open I found that those bees had a comb started diagonally across the box hive. I lifted it a little more very gently, when one slammed a sting into my nose. So I let the lid down and got my saw and cut into that cover very slowly and carefully. Not a bee made a move. It took me 20 minutes to do the sawing; but I was well paid for my time. I took the inside measure and made three frames and slipped them into the box. Three weeks later those frames were solid comb and honey.

Kill my soap boxers, Mr. Beeman? I guess not.

I like to get advice, but I do not always take it to keep. I am now making some 12-frame hives for next year. I now have five colonies, but one of them is hybrid.

In this locality bees work on maple blossoms, fruit bloom, bull thistles, and fireweed. There is some clover here, but not much. Ed. C. Hemp.

Snoqualmie Falls, Wash.

WHAT KIND OF BIG HIVE—IF?

A Californian View of the Tendency Toward Big-ger Hives

The hive question, it seems, is one that will never down. Beginners are prone to seek a hive that will prevent swarming, but it is doubtful if any such hive will ever be found without encountering greater incon-

veniences than swarming itself. The beginner who tries a new hive will have about 999 chances out of 1,000 to be wrong.

It is claimed that there is a tendency in the direction of the twelve- and thirteen-frame Langstroth hives. Now, I have 200 20 x 20 or thirteen-frame hives in my apiary, and I wish that I did not have one of them. They are too big—too large to handle, and too large for the average queen. Three years ago I got these hives and put 100 of my best colonies in them, and found that only four or five queens were capable of keeping such hives filled with brood. None of these queens was two years old. Moreover, I selected the best 100 out of 300 colonies to transfer to the large hives. A few of the queens used only eight combs, the average number of combs being from 9½ to 10. Of course these combs were all worker. The queens will use more if there is much drone comb in the hive. With these large hives, supers the same size, and a queen-excluder on, but with suitable arrangement for ventilation and plenty of empty comb above and below, about 25 per cent of those colonies swarmed. They also after-swarmed as much as colonies in small hives. The size of the hive, however, does have something to do with swarming, for they will swarm worse from eight-frame hives than from hives of ten or twelve frames.

The eight-frame hive has lost out entirely. I would not accept eight-frame hives as a gift if I had the money to buy the ten-frame size. But while we have gone from the eight-frame to the ten-frame hive, I think there is much doubt whether the twelve-frame is better than the ten-frame. We can prevent swarming to a great extent by using the ten-frame hive three high in operating for extracted honey, provided we work without queen-excluders—at least the excluders must be out of the way until the approach of the harvest. I know to a certainty that bees are much more given to swarming with the queen-excluders on in the early spring; and, so far as swarming is concerned, it would be advantageous to use no queen-excluders. But I prefer to use them except in early spring, for I think their value outweighs their disadvantages.

It is quite possible that the Jumbo ten-frame hive has advantages over the standard ten-frame size, but the regular Langstroth frame seems to be about right. Nevertheless, if we ever change to another style, it certainly should be larger and not smaller than the Langstroth. Small frames are an absolute nuisance at the time of extracting. It is my belief that we should be very careful about changing from the standard ten-frame Langstroth hive; but if we do change it should be to the Jumbo ten-frame hive, with the frames wired about every 1½ inches to hold the foundation.

Piru, Cal.

Chas. A. Brown.

THAT'S a good editorial, page 74, February Gleanings, the gist of which is that a man should not advertise beyond his ability to

perform. On the side a point is brought out that is worth considering. A has advertised, is flooded with orders, and turns to B, from whom he buys to help out. Evidently B has not advertised, and the question is whether it would not have been better, at least for B and the customer, if B had advertised and shipped directly to the customer, instead of sending thru A.

* * *

Yes, as said in print beneath the picture, on page 76, the dress of those four "ettes" is "sane and safe," and, it might be added, very sensible. Yet the "eternal feminine" is still there, as you can see by the one sitting down. Her hands are saying, plainly as can be, "Is my hat on straight?"

* * *

Speaking of some of the California beehives, you say, Mr. Editor, page 75, "These ranges of sage and wild buckwheat will never be good for anything but bees." In this day and generation, that statement is just a bit reckless. It would be nothing astonishing if something undreamed of should turn up, making that land valuable away beyond its value for bees, and who knows but beekeepers may be the pioneers in opening up those unexpected values?

* * *

Speaking of overstocked territory in California, you say, Mr. Editor, page 75, "there should be a law to stop the encroachments of poachers." Aren't you getting a bit reckless? I knew a man who once got into all sorts of trouble for advocating that a beekeeper should have a legal as well as a moral right to his territory. And yet, will some one please arise and explain why a man should have such a right in New Zealand and not in this country? Also why it should not be that a man is just as secure in the bee business as in the cattle business.

* * *

As to that account, on page 104, of a man selling 22-cent honey at 6 cents for local consumption, likely not many of us have really learned yet that "it is more blessed to give than to receive"; yet the war, with its drives for Red Cross and other things, has helped quite a bit. Even the churches are, as a rule, away in the background. The amount raised for benevolence is only a small part of that raised for local expenses, when in most cases it should be on at least a 50-50 basis. All that does not make selling 22-cent honey to neighbors at 6 cents an example worthy of imitation. As a business

STRAY STRAWS

Dr. C. C. Miller

proposition it's rotten, and I doubt the morality of it. When Mr. Foss sold honey worth \$1,760 for \$480, he gave away \$1,280. An excellent thing, if he

could afford it, and the charity was judiciously bestowed. But by what sort of right did he give any of that money to those of his neighbors who were better off than he, "when the world is overwhelmed with suffering" and thousands upon thousands are starving? Can he look squarely in the eye at the last those starving Armenians and others?

* * *

Prohibition promises to prove such an important factor in the national life of America that it ought to add at the very least 10 per cent to the intrinsic value of the stocks and bonds dealt in by Wall Street.

There is no individual business in which it cannot be proved that great special good will result from abolition of the liquor traffic.

That's not copied from a Prohibition paper, but from a cold-blooded financial letter in a Chicago daily that up to now has advocated the use of beer and wine to prevent the consumption of stronger alcoholic drinks!

* * *

E. J. Ladd has sent the following quotation from the excellent book of Dr. Henry Lindlahr, "Nature Cure and the A B C of Natural Dietetics":

Prominent chemists have discovered that foods contain in various chemical forms, and in exceedingly small proportions, certain substances which they have called "vitamines" * * * meaning "living substance." It is assumed that these vitamins are molecules highly charged with vital energy, the essential element in nutrition.

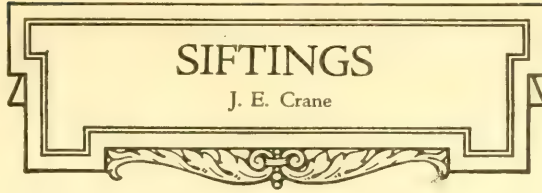
The discoverers of "vitamines" have found that boiling destroys a great many of these highly organized substances and that temperatures higher than the boiling point kill most of them. It has been proved that animals will die of starvation when fed exclusively on foods in which the vitamins have been destroyed.

Vitamines, the carriers of the life elements, are located largely in the outermost dark coverings of the rice kernel. In the various grains, also, the vitamins are present in much greater proportion in the outer dark layers and in the hull rather than in the interior substance. These discoveries of chemical and medical science seem to indicate that the positive "organic mineral salts" located in the outer parts and hulls of grains are the carriers of "vitamines." All the dairy products, including eggs and honey, are very rich in vitamins, or, as we express it, in the *vito*-chemical life elements and in animal magnetism.

I hardly believe there is heat sufficient to kill the vitamins of the honey in the drink I take each morning, that being my sole breakfast.

[See the department of "Gleaned by Asking" for more of Dr. Miller's contribution to this Gleanings.—Editor.]

WE finished making last season's beeswax a week or two ago and had a total of over 450 pounds. It was made from capings, scrapings, drone combs, sections of granulated honey, and old combs, some of which had been in use for over 40 years.



* * *

"Better one hive yielding surplus than a score that give you naught," says Grace Allen, page 91, and she is right. We estimate the value of our bees by the strength of colonies, not by their number.

* * *

On page 86, in speaking of the granulation of sugar syrup fed to bees, Dr. Miller quotes Mr. Crane as saying, "there is a little granulation without the acid, but no more than with it." It would have been more correct to have said honey instead of acid, for honey was what I was thinking of.

* * *

In spite of Mrs. Puerden's warning that "Our Food Page" was not for Mr. Beekeeper in the February number of Gleanings, I could not resist the temptation to read it, and found in it not only a good recipe for bread but a most excellent recipe for domestic happiness. It is a keen source of pleasure for most parents to eat food their children have cooked. No more wholesome or healthful joy comes to childhood or youth than the satisfaction of having done something well that grown-up people do. It matters not whether it is cooking a loaf of bread, breaking a colt, or caring for a hive of bees. It lifts their young lives to a higher level.

* * *

Dr. Miller inquires, page 86, "Who can tell us in what cases granulation is likely to occur, and why it occurs in one case and not in another?" I can not, as I have not had enough granulation of sugar syrup when fed to bees to study the subject very carefully; but, if I may indulge in a Yankee's privilege of guessing, I should say it would be more likely to occur in a weak colony than in a strong one, or when placed in cells in which there was some honey that granulates quickly. The Doctor closes his paragraph by saying, "The whole thing is in something of a muddle." Not at all, Doctor. Just feed your bees the syrup early or late, and the bees will do the rest. There is far less danger of the syrup's granulating than there is of the average honey the bees store.

* * *

That is certainly a most creditable showing of the "Oklahoma Boys and Girls' Bee Club," as given on page 83, a number of

members producing from 100 to 125 pounds of honey to the colony, and that in "one or the poorest seasons in the history of the State." Of vastly greater

value than the honey sold is the effect upon young lives by having met with success in their efforts. I know a college president who began his business career by building up weak colonies of bees and selling the surplus from strong ones, to secure an education. Later, he has taken a small, weak college and built it up into a prosperous institution and secured an endowment sufficient for many years to come.

* * *

M. L. Jones, page 85, February Gleanings, seems to be much exercised in regard to the best way to get rid of excessive moisture in his hives. This is really an easy matter with a strong colony. A cubic foot of air at a temperature of 30 degrees will hold two grains, troy weight, of moisture when it becomes saturated. Raise that same cubic foot of air to 70 degrees, and it will hold four times as much moisture before it becomes saturated; and, unless more moisture is added to it as the temperature rises, it becomes a very dry atmosphere. That is why the air in our living rooms in winter is so dry, and so many complain of catarrh. If the air in a beehive is too damp, we have only to raise the temperature to make it a dry air. This can be done either by warm packing or by reducing the size of the brood-chamber.

* * *

J. L. Byer, I have something to say to you. You say, page 95: "To all who say that colonies can have too much honey and too little 'winter nest' for good outdoor wintering in a climate similar to ours, I respectfully suggest that they try the matter out." * * * "I feel almost like saying that I will stand the loss in wintering if loss occurs." Well, you "almost" have the courage of your convictions. Now, let me offer a proposition. Suppose you take a good colony of bees and on Nov. 1 transfer the bees to a brood-chamber or hive filled with combs that are solid with sealed honey, and try to winter out of doors the same as others. If I were a betting man, I would bet my cooky against your doughnut that they will be as dead as a doornail in the spring or at least nearly worthless. However I won't bet; it is wicked. But, say! if they come thru in good condition, I will not only "almost" but be quite willing to stand the loss. I tried this matter out some 25 or 30 years ago by feeding 10 or 12 colonies until the hives were crammed with honey in late October—with the result that some of them died, and others were greatly reduced by spring.

"I'll tell you what I'll do," said the nicest man I know, "If you will be ready by the last of the week I will take you down to Florida for a few days." And we were, and he did, and that is why you are going to be told something about Florida foods this month.

Let me start by telling you about our first meal on Florida soil, which will always remain in my recollections as a banquet. Perhaps, in order to make it plain just why it is such a pleasant memory, it will be necessary to tell something of our experiences previous to that banquet. After a long delightful day of running among the mountains, dodging between them and sometimes taking a header right thru a mountain we (father, mother, fifteen-year-old boy and eleven-year-old girl) arranged ourselves compactly, if not comfortably in our berths, went to sleep, and expected to awaken in Florida. But morning found our train stranded in the hills of Georgia where we were held 15 hours, waiting for a landslide to be cleared away. But the sun was warm, the scenery beautiful, we were together on a vacation, and we climbed up and down to our hearts' content, incidentally acquiring ravenous appetites. The food question did not trouble me any, that not being my business when we are traveling, but I noticed that the head of the family seemed anxious to keep us from straying far from the diner about the time breakfast should have been announced and wasn't. When it was finally ready we had a good meal, but later comers were not so fortunate as the provisions gave out, and the chef was not resourceful enough to find any in the neighborhood, altho some of the passengers managed to forage for themselves. After the train finally got started it dropped the diner, probably in Atlanta, where we were given a very few minutes to make a dash for the railroad restaurant. As the waiters there could not see any need of haste, even if there was a trainload of hungry passengers, we had only a sandwich apiece. After that not a bit of food was in sight until nine o'clock in the evening when we finally picked up a diner. By that time I had gone to bed hungry and declined to arise and accompany the rest to their belated meal.

The next morning the provider of the family advised me to lose no opportunity for a meal hereafter when traveling, for (would you believe it?) they had cruelly dropped that diner again in the night. However, as the breakfastless hours wore on I could not see that the others were enduring any fewer pangs of hunger than I. At last we stopped for ten minutes at a little Florida junction, and the livelier passengers sprinted toward a restaurant sign over

OUR FOOD PAGE

Stancy Puerden

the door of a little shack between the tracks. Inside there was a row of stools in front of a counter all too short. The best runners sat on the

stools while the others stood behind and ate standing, as if they were at a reception, but with a difference. On the counter were plates of sandwiches piled mountain high, there were thick cups filled with coffee, and condensed milk for the coffee. In front of where we sat, for we were among the good runners, was a great plate of egg sandwiches. These consisted of a couple of thin slices of bread put together without butter, and on top and extending beyond the bread on all sides was a sort of omelet. I think it was one egg, possible more, beaten a little and then fried and turned in plenty of fat. By the time one had eaten three, as I did, her fingers needed a finger bowl, or rather a bathroom with soap, and there were not even napkins. But the food seemed clean, the eggs were obviously fresh and piping hot, the bread good, and everyone was happy. There were other sandwiches containing some kind of meat, but the egg sandwiches were too good to risk experiments on other varieties.

I shall have to admit that I have hitherto looked on Florida as a State where they raised profitable crops of tourists and oranges and not much else, and because of the climate a sort of paradise for old people and invalids. Not really considering myself in either class as yet, I have not cared much for the State. Perhaps the fact that my previous visits have been preceded by a killing freeze has made me blind to what a wonderful place it is. When we reached St. Petersburg and took the little steamer to cross Tampa Bay to Bradentown the air was so soft, yet invigorating that, like Harry Lauder, it "intoxicated us with bliss."

Our Ohio friends had said, when told where we were going, "Why should you go to Florida when we are having such warm weather here?" But, believe me, warm January weather in the North with gray skies, naked trees, barren gardens, and mud is nothing like the blue skies, sunshine, fruit, and flowers of Florida. An open winter in the North is the kind to run away from. The real thing with snow, ice, and tingling cold weather has charms of its own.

Of course we went straight to A. I. Root's little home in Bradentown, and of course we found him in his garden and happy. How I did wish for a good camera. But no half-tone could do justice to those long, orderly rows of luxuriant potatoes, the rich green of the foliage contrasting beautifully with the soft ashen gray soil. That soil, by the way, always makes me break the last of the

commandments. Gray when dry, black when it is wet, soft and friable at all times, it must be a delight to work in it. Surely Eden had just such soil.

In addition to the main crop of potatoes there were green peas, string beans, lettuce, onions, and radishes in their prime with a promise of green corn, tomatoes, and other good things, providing Jack Frost is merciful, and he usually is on that favored peninsula. And there were other things growing in that garden, cacti that bear fruit and other strange plants which Mr. Root delights to test, and the whole garden bears the stamp of his originality. If I ran across an A. I. Root garden in Africa I think I should recognize it.

The children had the delightful task of picking their oranges and tangerines right off the trees. While the grapefruit in Mr. Root's garden were gone they could be bought in Bradentown for 20 cents a dozen—think of it. We each ate a whole one every morning for breakfast. And when we were only an hour away from Bradentown we could have ordered them on the diner, but didn't, for 20 cents a half a grapefruit, a nice little profit for some one.

If flowers are a fitting accompaniment to food on a dining table it is all right to talk about them on a food page, isn't it, Mr. Managing Editor? I am going to any way. Here in Ohio we cultivate and spray and guard our hybrid tea roses and there is great rejoicing over a perfect bud. In Mr. Root's garden there are buds in abundance that you couldn't buy for \$10.00 a dozen in the North at this time of year, and grown with almost no care. They seem entirely free from the aphids that I fight all summer, and the foliage is remarkably free from disease. The next time that a nurseryman tells me that roses are at their best on a clay soil I shall tell him to go to Florida and see the roses growing in the sand.

To return to the subject of Florida as a food-producing state, we were taken to visit the largest producing grapefruit grove in the world at Manavista, across the wide Manatee river from Bradentown. It is said to contain 94 rows of grapefruit trees, 100 trees in a row. Most of the trees were large, like apple trees in an old orchard, and as the manager told us their yield this year was the largest ever known I infer that the fruit part of many northern breakfasts came from that grove.

Here is where I saw an apparent waste that pained my Food Administration trained conscience. I saw another in the cotton fields of Georgia, but cotton is not a food, altho I do believe that land which has borne a crop of cotton too poor to harvest might better be put to raising food crops.

As I was about to remark when interrupted by myself, in this grapefruit grove and in other grapefruit and orange groves in other parts of Florida there are quantities of fruit on the ground. When I asked why it was not gathered I was told that it never

was, that it would not do to ship altho it tasted all right if used at once. I believe an attempt to bottle the juice has been made, and it was not altogether a success. Surely it could be used for marmalade. Do you suppose some Floridian will read this and suggest that we Northerners may take care of our windfall apples and leave the windfall grapefruit and oranges to them?

A pleasant surprise to me was to see acres and acres of thrifty-looking truck gardens on our way to the grapefruit grove and in other directions in Manatee County. I never before saw such quantities of fine head lettuce, cabbages, beets, and celery. Later, tomatoes and green pepper plants will take their places.

Honestly, I am ashamed to mention another attraction to a Florida winter, as the list is so long as it stands, but I just cannot omit strawberries. And it is not alone that strawberries may be had in winter but the fact that they may be had practically all winter, nearly a six months' season, I believe. It makes me feel like accusing Mother Nature of partiality when you think that she grants Florida a six months' season of our favorite berry while we do well if the season lasts four weeks.

Maybe Florida is doing as much to promote good health thruout the country by her citrus fruits and fresh winter vegetables as in affording a health resort and winter playground. She is certainly doing her part toward feeding a hungry world. It was a surprise to me to learn that the corn crop of the State had brought more money than the orange crop. And the Florida pigs had grown so plump that we had difficulty in finding a real razorback to show the children. While cattle are becoming quite plentiful in Florida, just between you and me they do not look like the "contented cows" of a Carnation milk ad., but I suppose they give milk.

Dear me, after writing all this about Florida foods I have omitted fish, oysters, sweet potatoes, bananas, sugar-cane syrup, and honey. Well, they are all there, and in abundance. I was certainly glad to have a chance at last to sample the cane syrup with all the sweet nature put in the cane left in the syrup. It is indeed a very different product from the molasses which is left after extracting all the sugar possible. Southerners tell me they like it quite as well as our maple syrup. Possibly that is because the best maple syrup is seldom on the market except in its native states. To me maple syrup is the second finest sweet in the world. I believe beekeepers generally will agree with me if I put honey first.

* * *

ORANGE MARMALADE.

1 lemon	honey or sugar
3 oranges	water

Quarter the fruit, rejecting the seeds and any tough membrane at the core; put thru the food chopper, measure, and for every pint of fruit pulp add three pints cold water

(Continued on page 195.)

THE time of conventions is with us again, and the sound of addresses is heard thru the land. All good side liners should go to conventions.

Unfortunately, a convention, like the very human beings therein convened, can be in only one city at one time. So neither the national nor the state gatherings can possibly be held in the most convenient place for everybody. But they are always convenient for a great many and fairly accessible to still more. And they are very much worth while.

Of course the professionals are always there, making most of the addresses and giving freely of advice and experience; while the interchange of views and the arguments about methods, if satisfyingly enlightening, are largely in their hands.

There are two reasons the large and successful beekeepers and honey producers are pretty certain to be found in faithful attendance upon conventions. One is that they realize how others now look to them as they once looked to some one else for leadership, and they are glad to do their share in a world where co-operation is one of the greatest words yet spoken. The other reason is their own eagerness to learn. We may not smile at this. This is the attitude that has made them what they are. Such men are always on the alert for new ideas. If they can pick up one suggestion of an easier or a quicker or a more efficient way to accomplish some desired end, they feel that that one little idea may more than compensate them for the expense and trouble involved in attending the convention. If this is true of the big ones, how much more true of the small ones. They have so much more to learn. And in any assembly of live beekeepers there is a chance to learn.

Our own Tennessee convention met with several disappointments, as there were three or four scheduled on the program who were not able to be present. But at that, it was a good convention, good particularly in the spirit of brotherliness it helped to foster. And always I shall regard that as a not unimportant aim of conventions.

Following a paper by George Ainslee, Knoxville, sweet clover came in for some animated discussion. When something beneficial to beekeepers does as well as sweet clover has done, so near to home as Kentucky is to Tennessee, it is time for the home people to take notice. This is true not of Tennessee alone. It is a truism. We ought not to wait for opportunity to come to us in such matters, we are to make opportunity ourselves. Porter Ward told us how his own locality, which he formerly considered somewhat poor, has recently improved materially by the rather extensive

Beekkeeping as a Side Line

Grace Allen

introduction of crimson clover. Many another location has passed thru similar changes. Who can tell what can be made of mediocre chances

when deliberate effort is put forth toward improvement?

But the prize feature of our meeting was C. P. Dadant. Over and again, all thru the program, he answered questions on various subjects with directness and wisdom. His own paper on "The Management of Out-Apiaries" came in the evening session, and it goes without saying that it was a forceful presentation of the subject. Plied with questions as to the advantages of those famous big hives, he left his hearers well convinced of their many superior points. And he left them still more convinced of the friendliness and courtesy and force of the genial editor of the American Bee Journal.

The Tennessee convention passed one rather important resolution, passed it without one dissenting vote, and with a great deal of favorable comment. The Tennessee State Fair management every year prints in its catalog a rule to the effect that exhibits in the Agricultural department must have been produced by the exhibitor the year exhibited. There has been no such rule in the Apiary section. Thus it has been left to the judgment of each individual exhibitor to decide whether honey produced in previous years, or honey purchased from some other producer, might with propriety be entered. Judgments differ. So the Association went on record as desiring rules and restrictions in the Apiary section similar to those in the Agricultural section. A committee was appointed to lay the matter before the State Fair management, and inform them of this earnest request of the association, "in convention assembled."

Of course the little labeled samples of different kinds of honeys are not supposed to be produced by the exhibitor, and granulated honey is not supposed to have been produced the year exhibited. So these are not to be included in this ruling. But surely in the case of any extracted or comb honey regularly entered in competition for prizes, some such regulation is necessary, or at least wise and reasonable. The honey exhibit at State Fairs should represent a friendly, straightforward competition among honey producers of their own product, and should not under any circumstances slip down into anything less open and dignified.

One thing that was again and again brought out at the Nashville convention was the necessity for reading. It is folly for the beginner to try to learn everything of his own experience. Others have studied out wise steps and successful ways of doing

things. All this accumulated wisdom is his for the mere reading of it, and the digesting, and the applying. Nor could any beginner expect the time of a convention to be given over to the explanation of what are mere rudiments, long known by all present except the two or three very new ones. Even were it reasonable to turn the meeting over thus to such primary instruction, the beginner could not learn it all that day. So the thing for him to do is, as has been said countless times, read—read—read. As one of Mr. Adkisson's clever negro verses says in conclusion,

"I's sho gwine git me some modjun hives,
De Gleanin's an' A. B. C.;
Den de w'ite man an' de w'ite man's bees
Aint gwine ter have nothin' on me."

* * *

Those of us who had not heard the heavy news before were utterly saddened to learn at the convention of the death in France of Frank Ring of Franklin, Tenn., one of our younger beekeepers. Somehow it struck hard and deep, that news that day—he was so young, so strong, so upstanding, so boyish. The last time I saw him was at the State Fair in 1917, gay and full of light-hearted good cheer. At the Fair last fall his father took a bit of the red, white, and blue decoration from our booth to inclose with a message of good wishes I sent to Frank by him. I wonder if he ever got it. Oh, you who sit by the peace table in Paris, be wise and godly in your judgments. We have laid holy gifts on the altar of righteousness—it is yours to see the altar kept clean and fair, worthy forever of the sacrifice. They must not have died in vain, Frank Ring fresh from his bee-yard in Tennessee and those uncounted others from their homes over all the earth.

You know Rupert Brooke's wonderful sonnet beginning,

"If I should die, think only this of me
That there's some corner of a foreign field
That is forever England."

So, over there now, there is a corner of a French field that is forever Tennessee. Surely sometime soon there shall be blossoming things on it that shall bring the bees, and all around and above shall be a humming like the humming in the old yard at home. And, somewhere, Frank shall know, and smile.

* * *

It has certainly been a mild winter over all the country. The new year came in on rather a bad day, here, when the mercury dropped from 65 to 29 degrees, and there was sleet, and wind with a velocity of 35 miles per hour. Not very bad, yet that was the worst wind and the worst daily variation in the whole of January. The mean temperature for the month was 40 degrees, and that's not very mean. Last year it was 26. Normal for January is 38.

We are all feeling pretty thankful for that big fall flow, and the hives so heavy

with honey; for such a warm, open winter as this is calls for a wealth of stores. Now if only the spring will not convict us of queens honey-bound in the fall! More than one beekeeper is worried.

* * *

Three thousand tons of honey hoarded in Australia for speculation! Naughty, naughty somebody!

* * *

Some one asks, "If a man who works on a farm is called a farmer, and a woman who does the same work is a farmerette, why isn't a man who works with bees a bee-er, or beer, and a woman who does the same work a beerette?" I don't know; perhaps it's contrary to the recent 18th amendment to the constitution.

* * *

A certain sympathetic gentleman who believes in poetic justice has admitted that if there were any of the beekeeping fraternity among those who were soused with molasses in the explosion of the molasses tank in Boston in January, he hoped it was some one who had rolled queen bees in honey. "Served 'em right—let 'em find out how it feels," he imagined the queens murmuring, when the news reached them.

* * *

The ground hog saw no shadow on the first of February, so, according to the queer old tradition, winter is practically over. Tree tops are full of promise. Onion sets are being quoted on the market page of the daily papers. The bees are bringing in pollen. So, tho this is only the third of February, the wonder season seems to be almost upon us. Still there are many, of wide experience and little faith, who cry, "Beware of February and March!"

* * *

MY THOUGHTS.

Some days my thoughts are butterflies,
And some days they are bees,
But every day they fly away
Beyond the farthest trees
To where some perfect beauty lies
For either bees or butterflies.

Sometimes they've color on their wings,
Sometimes they hum a song,
Sometimes they glean as for a queen
Fair gifts I've wanted long,
And bring me back the lovely things
With raptured song and homing wings.

And that is when my thoughts are bees,
When every joyous flight
Brings something back from that wild track
They make across the light.
For fairy plunder no one sees
My thoughts take flight like flashing bees.

But when my thoughts are butterflies
They rift so gently out
I scarcely know they mean to go
Or what they are about.
They are more beautiful than wise
When they drift out like butterflies.



FROM NORTH, EAST, WEST AND SOUTH



In Northern California.—There was but little rainfall here during January, not enough in fact to warrant the beekeeper to move into the Coast foothills. Unless several inches fall during the early part of February it would not seem advisable to move to this early source of nectar. Spring moving will be confined mainly to the almonds, prunes, and then to the oranges. The large almond-producing counties are Butte, Sutter, Yolo, Sacramento, and San Joaquin. The prune belt is found in Santa Clara and the orange belt in Tulare County. As yet there is no overstocking among the almonds and prunes, nor is it likely that there will be, altho each succeeding spring many more orchardists are paying beekeepers one, two, and three dollars a colony for bees placed in their orchards. The value of moving to almonds and prunes is not so much for the crop of fruit-bloom honey so secured (as a matter of fact it is only under favorable conditions that a full extraction is taken off), but for the purpose of breeding up the bees into full colonies and for making some increase. Bees having received the benefits of almond bloom are usually in excellent condition to be moved to the oranges. On the other hand, in order to bring bees up to proper shape for the orange flow, they should have been left with ample stores the previous fall. By ample stores is meant from 30 to 50 pounds to the colony. Bees left with ample stores will always begin breeding early, and this early activity within the colony may be hastened by moving or stirring up the colony in some manner and by breaking the cappings of sealed honey near the brood from time to time. Likewise, attention must be paid to a sufficient source of pollen during the breeding period. Combs containing pollen help, but better and quicker results are obtained when the pollen supply comes fresh from the fields. If a beekeeper contemplates moving to the oranges and finds it impracticable to make a move to deciduous fruit bloom, let him then take advantage of mustard and wild-radish fields. An early pollen and nectar source always gives better results than stored honey in the hive, and it is much the cheaper way to strengthen colonies for a main honey flow. Stimulative feeding, which is feeding small quantities at regular intervals, is a burdensome and laborious task and is not to be recommended to the beekeeper with outyards.

The Central Valley Honey Producers' Co-operative Exchange, altho lacking three months of being a year old, had during 1918 a very successful season. It started on its career last April with but half its present membership of 43 members. Altho the members were not required to market their bee products thru the Exchange, the Exchange handled nevertheless slightly

over 200 tons of honey and several tons of beeswax. With increased membership it is anticipated that the Exchange will handle the coming season double the output of last year.

M. C. Richter.

Modesto, Calif., Feb. 5.

* * *

In Southern California.—Our long period of dry, windy weather was broken Jan. 31 with a gentle soaking rain. From one and one-half to three inches of rain fell during the storm over the southern part of the State. We have now had considerably more rain than at this date last year. The sages, which are the first wild plants to show growth, sent out some new sprouts early in the winter but have grown little or none since. This rain will likely give them a new start. By Mar. 10, everything being favorable, several inches of growth should be seen, and by Apr. 1 blossoms should appear. The orange buds are swelling and, as usual, the blooming season will be governed very materially by the weather conditions. We have a variation of almost a month in the beginning of the prime blossoming period of the orange—from Mar. 25 to Apr. 25.

The California State Beekeepers' Association held its thirtieth annual session in Exposition Park, Los Angeles, Jan. 29-30. E. R. Root, Editor of *Gleanings*, gave a very fine talk on honey, markets, and beekeeping in general. Mr. Root gave much encouragement to the beemen with the information that, in his opinion, honey would remain at a good price during 1919. From the articles appearing in the Los Angeles papers giving accounts of talks before large audiences, it would seem that he is doing good work in getting our industry properly before the public. Pictures of Mr. Root, with his face covered with bees, were also found in the papers. A. B. Shaffner, who has had much beekeeping experience, talked on marketing the crop. R. Powell, president of the Riverside County Club, spoke on moving from the oranges to the sages. He paints his hives two coats on the inside and gives the outside three coats, and perhaps has one of the neatest apiaries in the county. Having everything uniform, the hives tight, good moving screens, and plenty of ventilation were some of the strong points in favor of successful moving. L. L. Andrews had assigned to him the topic, "Migratory Beekeeping." The shipment of four carloads of bees to northern Utah during the years 1912 and 1913, moving several hundred colonies two and three times each year to reach the orange, sage, wild buckwheat or river-bottom ranges have been part of his beekeeping experiences during the past 20 years. The average price received for extracted honey dur-



FROM NORTH, EAST, WEST AND SOUTH



ing these years has been 6½ cents, ranging from 3½ to 22 cents per pound. The officers elected for the ensuing year are: A. E. Whiteside, president; F. G. Bedell, vice-president; A. B. Shaffner, secretary-treasurer; executive committee, M. H. Mendleson, Frank Buchanan, Mrs. Russel J. Waters. The place of the next annual meeting was left with the executive board.

Carloads of bees continue to arrive from Utah and Idaho. Many of these apiaries were taken in the fall to a place near a railroad siding, and when the proper time came, they were loaded on the cars. Some owners will run their bees largely for increase, the shipment of pound packages, and early queens for their northern yards. Others will apply all of their efforts to the production of honey, making only such increase as seems justifiable. About 3,000 colonies have already arrived and more will likely follow.

The Orange Belt Co-operative Honey Producers' Exchange met in annual session at Pilgrim Hall, Riverside, Jan. 8. It was decided at this meeting by a unanimous vote to unite with the State Exchange. H. A. Wagner of Redlands, J. A. Mack of Bloomington, R. Powell of Riverside, E. W. Horne of Riverside, and L. L. Andrews of Corona were reelected as directors. E. W. Horne was chosen as secretary-manager and will have charge of all assembling of honey, distribution of supplies, etc.—in co-operation with the State Exchange. General Manager Chas. B. Justice and State Market Commissioner Harris Weinstock were in attendance and gave excellent talks on marketing and the successful workings of the various exchanges in California. E. R. Root of Gleanings' fame was also there. In his address he surely gave us some valuable information about honey marketing and the uniformity of interest between the supply manufacturer and the honey producer. Mr. Root made it very clear why it is to the interest of the one as well as the other that the price of honey should not be allowed to slump, thereby discouraging the buying of supplies as well as the production of honey.

L. L. Andrews.

Corona, Calif.

* * *

In Michigan.—The indications are that the demand for bees during the coming spring will be as great as or greater than it was last spring. More bees will be for sale, but the price seems to be even higher. The State Inspector of Apiaries is attempting to place buyers and sellers in touch with each other thru securing a list of colonies for sale and a list of persons desiring to purchase. If you wish either to buy or sell, write your wants to the undersigned.

Much anxiety is being felt among some beekeepers because of the shortage of

stores, due largely to the warm weather of the fall and the winter. An examination of some colonies which were fed up to normal last fall has revealed the need of more food before spring. Every Michigan beekeeper should make an examination of his colonies at the first opportunity. If food is needed and the weather is not suitable for feeding syrup, then feed hard candy or loaf sugar. From reports received, it is feared that there may be a repetition of the losses sustained a year ago unless feeding is resorted to very soon.

The writer was much impressed by the oft-repeated statement at the recent convention that the price of honey is in no way based upon the cost of production. How many Michigan beekeepers know how much it costs them to produce a pound of honey under their particular conditions? I venture to assert that not a dozen Michigan producers who read this paragraph can write to me the exact cost of production for the past year. If this statement is true (and I believe it is), is it not high time that some steps be taken at once to determine accurately what it costs to produce honey under the varying conditions present in this State? It has been shown that nine persons out of ten are losing money with their chickens. May not that be true with the bees? As long as it has not been shown that honey is being produced at a profit in the average yard, the statement of a loss can stand undisputed as well as a statement of a profit. If you are interested in this and if you would like to have the College take some steps toward determining this, then write me a letter at once stating the handicap which this condition imposes and ask that some steps be taken immediately toward determining the cost of production thru a series of several years. Don't wait for some other fellow to write. Get busy yourself. If the beekeepers will not ask to have this done, who will?

The annual convention of the Michigan State Beekeepers' Association, which was held in Lansing Jan. 21-23, was pronounced by those present as the best convention in many years. The attendance was above expectation. An average of about 150 persons attended each session and it is estimated that over 250 persons were present at one or more of the sessions. The program was followed out as printed with few exceptions, one being that Miss Iona Fowls appeared in place of E. R. Root, adding greatly to the interest and profit of the program. Gleanings surely picked a winner in securing Miss Fowls as assistant editor. O. P. Dadant was unable to be present, but he forwarded his paper, which was read by the secretary. Arthur Sharrow, who was to have spoken on "Two Queens in One Hive," was called into Government work some time ago, and the letter notifying him of the date of the



FROM NORTH, EAST, WEST AND SOUTH



convention did not reach him till too late. The whole time of the convention passed very quickly and profitably, and it was with reluctance that those attending separated at the close. The banquet was attended by more than one hundred persons. Hon. Thomas Reed, Speaker of the House of Representatives, presided as toastmaster. Among those who responded were Senators Scully and Watkins, retiring President Hon. Colin P. Campbell, incoming President Miss Addie Sly, retiring Vice-President Mrs. Floyd Markham, W. L. Cheney, L. C. Woodman, and E. M. Hunt. The banquet was a most decided success and was thoroly enjoyed by every person fortunate enough to attend. It was decided to hold the next annual meeting at Lansing, the date to be announced later. A summer meeting of the State Association will be held at some point in northern Michigan. The officers for the ensuing year are: Miss Addie Sly, president; Mr. Leonard Griggs, vice-president; B. F. Kindig, secretary-treasurer. A more extended review of the proceedings will be found from month to month in the Beekeepers' Letter, which will be sent to the names on our mailing list.

East Lansing, Mich.

B. F. Kindig.

* * *

In Ontario.—A restricted brood-nest about solid with honey is an ideal condition for a colony wintering outdoors to be in, during a very mild January. That is what I meant to make clear on page 95, February issue of Gleanings.

A regrettable error occurs in my copy for the February issue relative to the death of Mr. Brunne. Mr. Brunne, Jr., is alive and attended our convention in February, my informant having got the wrong information in a measure. It was Mr. Brunne, Sr., who passed away instead of the son, as I intimated. Mr. Brunne, Jr., informed me while at the convention that his father and his uncle both had died within a few days of each other.

This is a very peculiar winter here in Ontario, and, no doubt, the same conditions in a measure prevail in a great many other sections in this latitude. It is now Feb. 7, and cars are running on the roads as in the summer season, and fields all around are bare of snow. There has been little severe weather to date, only a few days reaching zero, and the sunsets for the last few days remind one of late March instead of early February. What this brand of weather means for the bee business is, of course, only a matter of conjecture. Owing to little extreme weather, clover and fall wheat appear to be all right, but what is in store during the next six weeks may tell another story. Reports from Ottawa and from points near the Vermont boundary in Quebec state that there they have six inches or more of

snow on the level and have had that about all winter. Bees have had thoro flights in southwest Ontario, while here (ours at least) have not had a general flight altho many colonies have had partial flights.

The honey market seems to be dull and dealers are loath to buy large quantities and at prices anywhere near what prevailed a short time ago. Lack of export demand is their explanation, and while they do not claim that honey is actually much lower yet they hesitate to buy. Just recently I was shown a press item that stated that Great Britain had removed all import restrictions on syrups, molasses, and other articles of like nature (this would undoubtedly include honey), the ruling going into effect on Feb. 24. Possibly, this may clear up the market situation a bit; but, personally, I believe the crest of high prices has been passed, and that honey in line with other food commodities will gradually fall a little from present quotations.

The Ontario Beekeepers' Association met in Toronto on Feb. 4, 5, and 6 with a large attendance, running between 200 and 300 for the various sessions. Interest was keen thruout the whole three days and a profitable and pleasant time was spent. Dr. Gates made his first appearance before the Ontario members of the fraternity since accepting the office at Guelph, and met with a very cordial reception. His announcements as to policy to be formed sound progressive, and he will have the good wishes of the great majority of the beekeepers of the Province. Space forbids my going into details, but aside from work in laboratory and actual teaching in the college, much experimental work is contemplated. Nearly if not all the speakers on various topics at the meeting were optimistic as to the future, but most thought that there would be a slight falling off in prices next season in case a good crop was assured. The importance of having motor cars for assisting in apiary work was emphasized by a number, and in this respect it would have been a source of interest to have ascertained how many in attendance were using autos. Certainly the number would have been quite large, while but a few years ago it was an easy matter to mention the few that used cars. Generally speaking, a light truck was favored rather than a heavy one, or trailer. We have a trailer for one of our cars, but after two years' use have come to the conclusion that we would much prefer a light truck. Farming combined with beekeeping was a live subject, and while the argument can be made interesting from the standpoint as to whether specializing pays best in either line as compared with the two combined, certainly it was made apparent that some good beekeepers and some good farmers are combining the two with great



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success. Little new legislation in any line was suggested, altho the usual discussion (a beekeepers' convention would seem queer without it) on foul-brood matters and suggested improvements to the law were not wanting. The officers elected for the ensuing year are about the same as last year, excepting that Dr. Gates of the College, Guelph, Ont., is now secretary. All business in connection with the Association should be directed to him in the future instead of to Mr. Hodgetts at Toronto. J. L. Byer.

Markham, Ont.

* * *

In Minnesota.—The influenza is on the wane in Minnesota. Special Field Agent McMurry had started work here again the first of January but was compelled to stop on account of the epidemic. After being postponed twice the annual meeting of the Minnesota Beekeepers' Association was held in Minneapolis on Jan. 29 and 30. The attendance was more than 125, and the meeting was considered by many to be one of the best in the history of the association. Prof. A. W. Rankin, in his opening address as president, laid special emphasis on the importance of forming local associations affiliated with the state association. He also suggested that inasmuch as the war is now over it might be well for beekeepers to produce more comb honey. Twenty per cent of those present signified their intention to produce comb honey next summer. A committee was appointed to consider and report as to the best plan for those to follow who have not more than five colonies and desire to produce only comb honey. Prof. L. V. France gave a report on the distribution of bees and beekeepers in Minnesota. So far as he has been able to gather information on the subject he finds that the counties having the largest number of colonies are Fillmore, Hennepin, and Morrison. A demonstration of fall and winter insulation was given by Dr. L. D. Leonard. His method consists in putting insulate on the frames under a two-inch telescope cover and then tacking insulate on the sides and ends of the hive. This is put on the hive early in the fall and remains on in the cellar and until late in the spring. H. L. McMurry mentioned as one of our unsolved problems the content of honey as regards the injurious factors in various honeys for wintering. He expressed the opinion that there are more losses from improper food than from any other cause. Prof. R. W. Thatcher, Dean of the Agricultural College, brought a message of optimism concerning the future and assurances of his hearty co-operation with the work of the beekeepers of the State. Frank S. Pool, who served as sugar representative for Minnesota, gave an interesting review of his work with special reference to his dealings with the beekeepers, which he said were very

pleasant. Prof. R. A. Dutcher of the State University spoke on the subject, "Does Honey Contain Vitamines?" His address was exceedingly interesting. He said that he had been able to find only small quantities in honey. Carl B. Stravs, Superintendent of the Department of Bee Culture at the State fair, made an earnest appeal to the beekeepers of the State to take greater interest in the fair and to recognize it as one of the greatest means of advertising Minnesota honey and thereby aid in building up the industry in the State. (I shall have more to say along this line in a future issue.) Major Francis Jager, who has charge of the Division of Bee Culture at the State University, gave the closing address on the subject, "Bee Culture and the War." The following list of officers was elected for the ensuing year: President, Prof. A. W. Rankin, Minneapolis; first vice-president, C. M. Peck, Excelsior; second vice-president, Mrs. D. F. McQuire, Hopkins; secretary-treasurer, L. V. France, University Farm, St. Paul; member of the executive committee for three years, O. L. Wille, St. Paul. Chas. D. Blaker.

Minneapolis, Minn.

* * *

In Texas.—The mild winter prevailed in Texas as well as thruout the North. Along with the increase in temperature there has been an increase in moisture. This last feature has been most gratifying after three long years of drouth. At this place we entered the year with an accumulated deficiency equal to the normal annual rainfall. There are many who feel that a mild winter will bring an early spring. However, those best acquainted with possible weather behavior in this State predict that the spring will be cold and late. It has been observed that excessive rains during the winter tend to prolong the period of cold in the spring. The problems of such a spring are a matter of much concern. The bees may be encouraged to build up excessively, and a late freeze may cut off the food supply at a critical time. Our bees were bringing in great quantities of pollen on Jan. 29 from three possible sources. Elm was in bloom at that time, and the spring beauty was attracting quantities of bees. Peach trees in the more protected places were in full bloom so that the bees were bringing in new nectar.

On this date (Feb. 7) the first examination of our bees was made. We had been awaiting anxiously a day that would be warm enough for such work. Our colonies went into the winter under varying conditions, and curiosity was running high by this time. We found some colonies made by late divisions to be short of stores, to which a frame of honey was given. In every colony eggs were found, and in the



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best colony there were eggs in five frames out of the ten frames. This colony had brood almost ready to seal. It would seem that every beekeeper would be anxious to learn the condition of his bees as early in the spring as possible. Such an examination is certain to disclose many weak spots which can be strengthened.

The great demand for bees is already felt. One of the biggest shippers is sending an agent out to locate every bee that may be for sale. Such effort will result in much good for all concerned, in that it will take bees from a probable non-productive situation to one of extreme production. Most of the shippers of package bees have already booked all the orders they can fill with normal conditions. Since it has become possible to ship bees by parcel post, the express companies have taken a different attitude toward the package trade. A year ago they were more than indifferent to the pleas for better service. Now they are making inquiries as to how their service can be improved.

On Jan. 28 the Dallas County beekeepers held their second regular meeting in the Chamber of Commerce rooms. This association has recently been organized, very largely thru the efforts of the extension service of the A. & M. College. The start which has been made is certainly very promising for the future. At this second meeting there were 76 people in attendance. Many members reside within the city but have become interested in beekeeping from the standpoint of backlot effort or a small outyard. Much important business was transacted and steps were taken toward securing an inspector, as foul brood is known to exist in the county.

The second annual meeting of the county apiary inspectors, held on Jan. 24 and 25, was considered a very profitable meeting by those who attended. There were 18 inspectors present, sickness preventing the six others from attending. These meetings have become necessary, as they bring together once a year all of the inspectors so they can prepare their plans for the coming year. Much discussion was given to proposed changes in the foul-brood regulations concerning the shipment of honey.

College Station, Tex. F. B. Paddock.

* * *

In Florida.—The beekeepers of Florida should thank Hafford Jones, food administrator for Hillsborough County, for the interest he is taking in the matter of spraying during citrus bloom. Several articles have appeared in the newspapers and more are to follow, so let us all do our utmost to educate the orange-growers whilst they are in the mood to take notice. I have heard of two cases where apiaries were ruined last year by ill-advised spraying with arsenate of lead. Don't forget

that if one little no-account grove is poisoned on your range, it may mean the loss of your crop, if not of your bees.

Another question that is worthy of consideration arises from the difficulty that is being experienced in buying bees in Florida. Last year was such a prosperous one that no one is willing to sell, and the few small lots that could be bought have been picked up by the established beemen near by. Letters are coming in daily asking where bees can be bought, and there appears to be none for sale. Many Northern beemen have stated their intention of coming to Florida and bringing their bees with them, and it is such letters that cause anxiety. Is there not some danger of foul brood being introduced into Florida if this movement of bees begins? Most beekeepers will be careful, but some will not. At present Florida is free from foul brood, but we have no law to prevent the shipment of diseased bees into the State; and should it once get firmly established it would prove disastrous to the honey industry, for it is safe to say that not one in twenty would know how to cope with foul brood. Not only would the beekeepers suffer, but the orange-growers would find a considerable decrease in their crops. It seems reasonable to believe that if the beemen and the orange-men will combine, they should have influence enough to insist upon the Legislature's preventing the shipping of diseased bees into the State. Can't we take hold of this situation before it is too late? In speaking of foul brood to one extensive honey producer, he expressed the belief that it would be a good thing if disease would clean out all the small apiaries. It might be good for a few who have had experience in the North, but it would be far from good for most of us and also for the small orange-growers that do not enjoy the privilege of being near large apiaries.

It appears there has been a considerable flow from the pennyroyal and maple, tho it is too early to look for reports of surplus. Those fortunate enough to get these flows should have their bees in fine shape for the orange, which will be in full bloom by the time this appears. There will certainly be a very heavy orange bloom this year, for the buds are already showing in great profusion at this time (Feb. 5). This bloom is coming also on the old wood, and most beekeepers seem to think that such a bloom yields better than one that comes of the new growth. It is probable that another bloom will arrive with the new growth, and so lengthen the flow. I believe that is what happened in 1914 when the flow lasted from Feb. 20 to Apr. 15. In that case we shall make a fine crop, but otherwise our bees will not be in condition to do their best work in this locality, for we do not get pollen early enough to start brood-rearing.

Apopka, Fla.

Harry Hewitt.

HEADS OF GRAIN FROM DIFFERENT FIELDS

How a Neighbor May Suffer.

It may interest the reader to learn where my bees got foul brood. Between the white-clover and buckwheat flows a year ago last summer we had a week or two of complete honey scarcity from natural sources. In spite of this my bees were bringing in honey at a lively rate, and, judging from their commotion and general behavior, they were robbing at some near-by place. Wishing to ascertain the cause of the trouble, I followed their line of flight until I came to a neighbor's bee-yard of five or six dead colonies. Among them stood a box hive, bottom side up, rotten with American foul brood; and, to make it still handier for my bees, some of the combs were broken or cut out and scattered over the ground.

It was too late to lock the proverbial stable door after the horse was stolen. Still, at night, when the bees had quieted down, I gathered up all the combs, broken pieces, hive and all, and consigned the whole outfit to the flames.

G. C. Greiner.

La Salle, N. Y.

[As stated on page 105 of February Gleanings, Mr. Greiner lost practically all of his colonies by his neighbor's carelessness.—Editor.]

What Is a Very Bad Case?

On page 86, February Gleanings, Dr. C. C. Miller asked for figures to determine the difference between a very mild and a very bad case of foul brood. My idea is that in a colony with from 2 to 10 frames of brood, if less than 10 cells are diseased, the case would be a very mild one; if from 10 to 40 cells, mild; more than 40 cells to one per cent, medium; more than one per cent, bad. Fifty per cent could safely be called rotten.

Arlie Pritchard.

Medina, O.

[It would be impossible to get all beekeepers to agree on figures to determine the seriousness of a diseased condition. For each one the figures would be high or low, depending upon his fear of the disease under discussion. If this estimate refers to European foul brood, we would not materially change it except to decrease the 50 per cent by at least half. In case of American foul brood, however, we would lower all of the figures considerably.—Editor.]

Granulated Cork for Packing.

Nearly all my hives are double-walled. I buy them in the flat and pack with granulated cork, such as Malaga grapes are packed in. I have noticed that when ice forms on top of hives and this ice is later covered with snow, that the ice on those hives which have a tray of forest leaves and pine needles on top, will

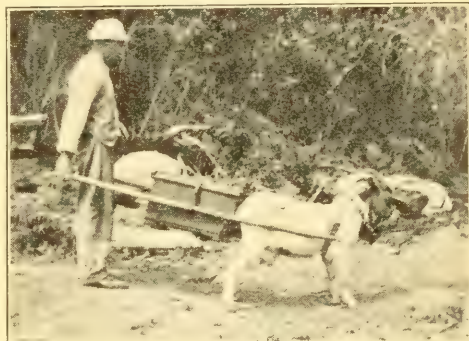
be melted in an oblong circle over the cluster, showing the escape of heat thru the sealed cover, the packing material, and the outer cover. This condition does not appear when the trays are filled with granulated corkwood. This wood seems to be a far better conservator of heat, and is, therefore, a better packing material.

Brookhaven, L. I.

E. M. Barteau.

The Wheelbarrow for Bee-Hunters.

Here is another type of wheelbarrow known as the Toggenburg type, which is used principally for transferring bees from the woods. He is also used for pointing game. Whenever I go bee-hunting, I let him go too as he is a great woods-companion. He will leave the other goats and go with me if I let him. On a bee trip he packs my coat and lunch, while I pack the compass and glass and do the scouting. As for packing bees I let him have two-thirds of the side rails. I have a string connected with the halter and the end of the



The wheelbarrow for bee-hunting in the mountains.

rail, and pull on either one to guide him. He is right there with the goods, except he's a little fidgety about standing. This beehive was nearly two miles from home, made up of a mile of trail and the rest nothing but gulches, brush, and hills, some steep at that. If you are much of a bee-hunter and want a good partner, get a billy goat and train him, as it will cost nothing to keep him.

Geo. W. Kinzie.

Orting, Wash.

Get Rid of That Moisture.

I read with much interest the article by Grace Allen, on page 28, January Gleanings, in which she says she has been reading a treatise by Ed. H. Clark in regard to the problems of moisture, etc., within the hive. Mr. Clark says we need a well-varnished hive inside to permit of this condensation so as to have plenty of

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water constantly in reach of the bees, or words to that effect. I have made some observations along this line and find this condensation does more harm than good—at least, I think it does. In the first place, it is not clean water, to my mind, for a lot of it is moisture from the bees' exhalation; and it seems to me that this moisture taken back into the system is anything but helpful—to say nothing, as Mrs. Allen points out, of the moldy combs and of the moist condition of everything inside the hive. In the hives the bottom-boards of which I painted with white lead paint, I found this condensed water drained out at the entrance, if the hives were tipped forward at a slight angle, and so very little remained in the hives, and that the bees seemed to be more quiet, and there were very few or no moldy combs; while those which had no paint had wet bottom-boards for the most part and a sticky mass of wax particles from cappings, dead bees, and the usual hive accumulation in a wet smelly mass on the bottoms. Arthur O. Heinrich.

Baldwin, Long Island, N. Y.

New Jersey's Honey Possibilities.

I was more than happy to see that article from a New Jersey beekeeper about his skyscraper colony. I never had dreamed that this fruit-and-vegetable-producing State could supply the needs of such a colony in even a single locality. Generally, the bees in my section are supplied with a variety of short flows lasting from May 15 to Oct. 15, furnished mainly by the apple, pear, peach, plum, quince, etc., in the early spring; later, by the clover, mostly on the roadside, and dandelions and other numerous wild flowers. Then, too, there are farms run principally to supply the large cities near by with vegetables, of which there are many acres in some places. The bees can obtain quite a supply from this source, and also from cultivated cut-flower nurseries and fruit orchards for which this State is noted. It is frequently repeated that New Jersey is the State of fruit and flowers.

Taking this into consideration it seems to me strange that there are not more beekeepers here, especially those who own truck-farms, orchards, and nurseries, who could make beekeeping quite profitable as a side line. There are also a great many suburbs in which city "commuters" raise chickens, flowers, and vegetable gardens as a recreation who might well become beekeepers.

Running northwest are ranges of mountains which are a continuation of the Blue Ridge range. At the foot of these the farms and orchards are generally located, which is another advantage in beekeeping.

While I do not believe the conditions here are very favorable to the production of

comb honey, it seems to be all the go. The reason for this, I think, is because not enough beekeepers study the subject deeply enough. As I said before, a single locality does not as a rule produce enormous amounts; so, therefore, in order to add car-loads to the national production, there must be many small beekeepers.

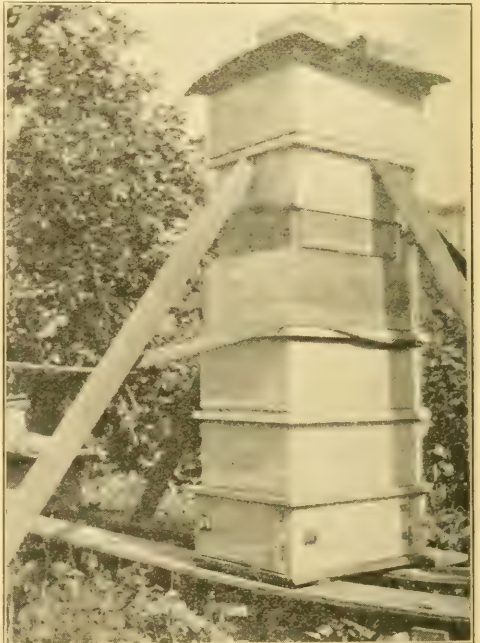
Geo. F. Kissam.

Rutherford Park, N. J.

Will Gasoline Wash Do It?

In the January issue of the Western Honeybee the editor says he does not know that gasoline kills foul-brood germs, but his experience has been that in hives disinfected with gasoline the disease very rarely occurs—much more seldom than in hives in no way disinfected. He asks whether there is any "scientific authority" to prove that gasoline does not kill foul-brood germs.

We do not recommend no treatment of hives, and yet we have known of as good reports with no treatment as Mr. Berby reports with the gasoline treatment. If gasoline could kill foul-brood germs, this treatment would not insure the gasoline reaching all the germs; for, even altho the hive were



A Pennsylvania "skyscraper" hive, belonging to E. S. Stalker of Hallstead, Pa., which produced 308 lbs. of surplus in 1918 and abundant winter stores. The colony had a two-year-old queen and did not swarm. Rails, stones, and rope seem necessary to "hold" this hive.

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scraped before applying the gasoline, there would likely be germs stored away in cracks or crannies in or under bits of wax or propolis, where the gasoline would not penetrate. We regret that we are unable to give the exact information desired, but we know that, altho different chemicals have been tried, our best scientific men are not recommending chemicals in the treatment of this disease. Even as scientific an authority as Dr. E. F. Phillips says, "The disinfection of hives and frames with chemicals is not recommended."

Medina, O.

Iona Fowls.

Honeydew in Winter.

When walking thru a piece of timber land today, I noticed some small rocks and leaves lying on the ground covered with something that looked like glue. On close examination I found it sticky and sweet. It looked and tasted like honeydew. But who ever saw honeydew in a cold place like this in February? There were some pine trees near, and I noticed this substance hanging in drops from the leaves.

I am sending you under separate cover two leaves that are coated with this substance. Please let me know what you think it is.

King, N. C., Feb. 2.

T. W. Gentry.

[From the nature and taste of the substance found on the two leaves sent, we should say this substance is honeydew, as strange as it may seem to have found it present under the conditions stated.—Editor.]

To Prevent Crushing Bees.

In manipulating my hives I found I could not lift a frame without more or less end-motion. The result was, I continually killed the bees between the end of the frame and the wall of the hive. I found that, by driving a small staple near the bottom of the ends of the frames, I could handle all the hives I possess without killing a bee. When the frame is lifted up the staple keeps the frame a bee-space distant from the wall of the hive until the frame is lifted clear of the hive. This idea might help others.

Winnipeg, Man.

J. F. Parker.



THE BACK LOT BUZZER.

Ma says now that March is around again, Pappy Sourweed is working on his patent swarm eliminator. Pappy says he can always think best when he is toasting his toes.

THE drop in the price of honey caught the Honey Producers' Exchange with a few carloads of honey still on hand, according to the January Western Honeybee. The editor evidently fears this might reflect on the Exchange, and therefore he states that most of the producers restricted the Exchange to a minimum price higher than the market would warrant.

* * *

"European foul brood, together with unwise inspection," has decreased the number of colonies in one county in California nearly 50 per cent, according to the January Western Honeybee. [The emphasized wording is our own.]

* * *

SUGGESTIONS.

In the February American Bee Journal are the following suggestions: (1) Royal jelly may be preserved for weeks at a time if placed in a small bottle and corked tight. (2) By judicious advertising "we may well expect to maintain the price of honey at a profitable point. It stands the beekeeper in hand to begin his advertising campaign before a smash comes." (3) When mating a queen from an upper story, Frank C. Pellett says he always gives a ripe cell the next day after raising brood so the queen will begin laying before all the brood is hatched.

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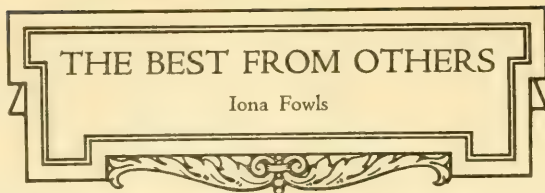
DETERMINATION OF SEX OF BEE.

In speaking of attempts to disprove parthenogenesis in case of bees, Geo. W. Bullamore, in the Irish Bee Journal for November, considers it possible that the Italian bee is the result of the crossing of other races; and he says the difficulty of finding a race of bees than can be guaranteed free from an admixture of some other race, together with the tendency of colonies to accept drones from other hives, makes it necessary for us to accept with caution any arguments against parthenogenesis which are based on the presence of multiple types of drones. Altho he believes written evidence upholds the view that sex is determined by fertilization, he says it is nevertheless possible that sex is determined by some other factor outside of the egg.

* * *

GOVERNMENT ASSISTANCE TO BEEKEEPERS.

The British and Irish beekeepers are far from appreciating some of the assistance the Government has been offering them of late. The editor of the November Irish Bee Journal intimates that the Government has been starving bees by refusing to supply the beekeepers with good sugar, and, instead, selling them at a high price sugar so heavily drugged that the bees refuse to touch it. He also objects to the leaflets of



Iona Fowls

advice that have been issued to beekeepers by the British Government. Some of these leaflets have been returned with strong protests. The last,

No. 48, is now on the desk before us, and we hardly wonder at the forcefulness of the protest when we find among other objectionable practices the advice to make increase early in the spring by removing a frame of brood and two of honey, with adhering bees, place on a new stand, and allow them to raise their own queen.

* * *

HOW NECTAR IS THICKENED.

That the six glands of the rectum of the bee are for withdrawing from the blood some of the excess of water gathered in the nectar is the belief of Dr. Brunnich, as stated in the February American Bee Journal. He says at least half of the water which makes up 80 per cent of the nectar passes thru the fine membrane of the honey-sac into the surrounding blood while the bee is flying home. In the rectum the six glands remove the superfluous water, which is discharged before the bee enters the hive. By evaporation inside the hive he believes there is done only a small part of the thickening of the honey—"from 30 to 40 per cent to about 18 per cent." This statement is a little confusing but we believe he means that the nectar when carried into the hive contains 30 per cent or 40 per cent of water and after evaporation only 18 per cent.

* * *

INSPECTION WORK.

Less law and more education is needed concerning foul brood and spraying of fruit trees, according to Frank C. Pellett, in the February American Bee Journal. Mr. Pellett, who has been five years an inspector, believes the owner should have more authority in the management of his own property. In regard to inspection work, he says that the time an inspector spends in examining one apiary might be spent to much better advantage in teaching two dozen people how to inspect and treat their own colonies.

[More educational work is certainly needed; but rather than discard present laws we should be inclined to make them still more stringent and pay a little more attention to their enforcement. We heartily agree with the advice to "get after the extension department of your agricultural colleges to put expert beemen into the field." This is at least a step in the right direction.]

* * *

FIBER CONTAINERS FOR HONEY.

In the January Domestic Beekeeper J. E. Crane says he is well pleased with the fiber containers, since they are neat and sanitary, seal perfectly, require no labels, and cost

little. He says two men can fill, seal, and case nearly fifty dozen an hour. By experience he has found there is much less danger of granulation when put into fiber cups at a temperature of 130 degrees than when put in warmed glass at a temperature of 160. Further, he states that these containers cost, as a rule, less than half as much as glass containers of the same size, which, with the saving in freight, makes the cost of using fiber containers two or three to five cents per pound less than the cost of glass. The only objection he has to the fiber container is that many people are unwilling to buy honey they can not see. The editor suggests that the only remedy for this is for each bottler to have his own trademark and see that nothing but one certain grade and flavor ever gets into a container with the given trademark.

* * * CORK PACKING.

The value of cork for packing double-walled hives is again discussed by Mr. Dunn in the January Canadian Horticulturist; but D. Anguish, in the same issue, says cork is no better than forest leaves. We have always considered cork a good packing material, since it contains many air-spaces and does not hold moisture. Still, we doubt if we would rate it as high as Mr. Dunn does. It may be of interest to note the following statement made by Dr. E. F. Phillips and George S. Demuth in "The Preparation of Bees for Outdoor Wintering":

"Exaggerated claims have been made by some beekeepers for such material as broken cork or certain commercial insulating materials; but it is safe to say that there is not 25 per cent difference between the poorest and the best of available insulating materials, providing, of course, that obviously poor things such as corn fodder and straw be eliminated."

* * * ISLE OF WIGHT BEE DISEASE.

The Isle of Wight disease which so closely resembles what in this country is called "disappearing" disease, is discussed quite fully in a series of articles by Joseph Tinsley in the August, September, and October issues of the South African Poultry Magazine. Because of our lack of knowledge concerning the "disappearing" disease, which is more serious and more prevalent than many beekeepers dream of, and because of the similarity of this disease to Isle of Wight, a review of these articles may be worth while.

Mr. Tinsley considers the Isle of Wight a highly contagious and deadly malady affecting bees and probably wasps. It first appeared in Britain in 1904—the same year it appeared in the Isle of Wight, from which it took its name. Four years later the colonies of Britain were reduced to a mere handful, and the next year in many districts of Scotland not a colony escaped.

Cause of the Disease.—In 1907 the Journal of the Board of Agriculture published

the first scientific report of A. D. Simms concerning the cause of the disease, and two years later the second report by Dr. Malden, who ascribed the cause of the disease to a bacillus (*Bacillus pestiformis apis*). The third report was made by Drs. Graham Smith, Fantham, Porter, Malden, and J. W. Ballamore a few years later in two different issues of the same journal. In this report the disease was definitely stated to be due to a parasite protozoan (*Nosema apis*). It is there stated that bacteria may play a secondary part in producing the symptoms, but no bacteria are found constantly associated with the disease. More recently the disease has been investigated by Dr. J. Rennie and J. Anderson. They believe *Nosema apis* is not the cause, but that the real source of trouble has not yet been found. Mr. Tinsley does not believe *Nosema apis* the cause, since he has rarely found it present. He has, however, on examination of the stomach contents and excrement, found masses of bacteria which he believes of significance.

Spread of Disease.—He believes the disease is spread by importation, by moving apiaries, by purchase of queens with attendants, by robbing, and by bees accidentally entering wrong hives.

Symptoms.—The bees become listless and lazy; the fore and hind wings are not held together as usual, and the posterior legs are rubbed over the abdomen. As the disease advances, the crawling symptoms are noticed, and many of the bees lose the power of flight, and cluster on the ground, crawling up stems of grass, and dying in great numbers. These crawling bees have distended abdomens, and appear to have dysentery, altho the writer believes this has no relation to the Isle of Wight disease. The bees die so rapidly that part of the brood perish from lack of heat. The queen is usually about the last to die. A colony may go into winter quarters in good condition, and then may die out during the winter from this disease. Bees that have died from this cause usually give off a very foul odor because of the fluid contents of the intestines, the fluid condition sometimes remaining for as long as six months.

Experiments Concerning Infection.—Various interesting experiments were tried to determine the means of infection. The liquid contents of the intestines were mixed with sugar syrup and fed to healthy bees that contracted the disease in from three to six weeks. Affected colonies were united to healthy ones by placing such bees, brood, combs, etc., in an additional brood-chamber above a healthy colony. The disease was contracted in from four to six weeks.

An extract made from diseased comb and sugar syrup was fed to healthy colonies. The disease appeared in from eight to ten weeks. The debris and fecal matter of hives from which the bees had died were mixed with water, and fed with sugar syrup to healthy colonies. The disease did not appear. This

(Continued on page 191.)

"**D**ID you ever hear of bees swarming Jan. 10? I was in Woodbine, Ia., on that day, when along came a nice big swarm of bees and alighted on a box car. This can be proved by witnesses."—Wm. Bartell, 1308 East 62d St., Chicago, Ill.

"I have had different experiences which would indicate that bees can hear. Dr. Phillips says they have no organ of hearing. I raise the question, Is it not possible that some organ has a dual purpose?"—Alfred Hengst, Tulare County, Cal.

"When my bees work on red clover it is on the first crop, not on the second. In 1901 they worked on red clover more than on alsike. I have never seen bees in this locality working on the second crop."—Ed. Bowman, Emmet County, Mich.

"I got 1,500 pounds of surplus this year, and sold it as fast as I could take it out of the supers at 30 cents a pound. I live in a valley on the Pacific coast, and have the only bees in the country around here. Honey comes mostly from white clover and fireweed."—W. W. Clark, Snohomish County, Wash.

"As to whether termites (white ants) would ever become a menace to beekeeping, this is entirely improbable, since they are not dominant insects nor predaceous in their habits. We have one or two records of their injuring wooden beehives when the latter were set in direct contact with the ground."—F. D. Hopkins, Forest Entomologist, U. S. Dept. of Agriculture.

"I have been very much interested in the discussion in Gleanings as to whether queens from foul-brood colonies would convey the disease if introduced into healthy colonies, as I bought three queens from Southern queen-breeders, and all three colonies into which they were introduced had foul brood. These were the only cases in my yard."—James O. Murray, Robertson County, Ky.

"I have done some serious meditating on the honey problem for the coming season. I have a home market for my honey, which demands both comb honey and extracted. I had about decided to quit raising both comb honey and extracted; but on account of market conditions now I shall keep on in my good old way of raising both kinds as heretofore."—J. F. Swartzendeuber, Washington County, Ia.

"The common objection to large hives is that they are too heavy and cumbersome to handle. Indisputably they are heavy; but it would be curious and amazing to know the amount of pounds lifted in the course

BEES, MEN AND THINGS

(You may find it here)

of a bee season by a beekeeper handling Langstroth hives and a beekeeper handling Dadant hives. The objectors should not overlook those weekly ex-

aminations that large hives (timely supported by supers and other essentials) permit to be entirely discarded."—D. Barone, New York City.

"Up to Dec. 8, 1918, my apiary was as busy as in the summer time, gathering pollen and honey from dandelion."—F. H. Drury, Putnam County, Mo.

"Opened a hive today, Feb. 1, and found young bees and also sealed and open brood on two frames, both sides, and some eggs."—Gilbert J. Porte, London, Ontario.

"This year I missed Dr. Miller's report on the average yield per hive. Did the good doctor have another failure last season?"—H. K. Hartman, Outagamie County, Wis.

"From my nine colonies, spring count, I got seven strong colonies and a little over 1,000 pounds of the finest honey. It was an extra-good season."—Henry D. Hagey, Montgomery County, Pa.

"Never before in my 25 years of beekeeping have I had several good strong Italian colonies keep their drones until Christmas time as was the case this year."—James Nifong, Forsyth County, N. C.

"I secured 162½ lbs. of clover honey last summer at Mt. Clemens, Mich., from one eight-frame colony, and increased five new ones, all of which are in fine condition."—W. A. Herrington, Wayne County, Mich.

"There are very few who keep bees on Long Island with any idea of making a profit except I. J. Stringham and one or two others. In the last year or so people seem to be taking more interest in bees, and one will see a few hives in a day's ride which were not here a year or two ago."—Arthur O. Heinrick, Nassau County, L. I., N. Y.

"Having completed a preliminary and rather hasty survey of beekeeping in Washington, there are some impressions which may be of interest to the beekeepers of the State. As a whole I have been struck with the very evident opportunities for the development of the beekeeping industry in almost all parts of the State. Some localities are already rather well stocked with bees; but in most places a study of the principal flora would show districts hardly touched by the bees."—Ward H. Foster, Special Bee Field Agent, Whitman County, Wash.

FROM Jan. 14 to 24 was held the annual winter course in apiculture at the Ontario Agricultural College, Guelph. The 47 men and women students represented three-fourths of the counties of the Province. The enthusiasm shown argues well for the future of the honey industry of Ontario. The course was in charge of Dr. Burton N. Gates, formerly of the Massachusetts Agricultural College, who is now Provincial Apiarist for Ontario. This was one of the largest short courses in beekeeping ever held at the institution.



A one-week course in practical beekeeping was offered by the Michigan Agricultural College, beginning Feb. 24. The purpose of this course was to teach beginners in beekeeping.

The Panhandle Beekeepers' Association will hold its semiannual meeting March 12 in the auditorium, Wheeling, W. Va. Prominent beekeepers will be in attendance to address the meeting.

The fifth annual meeting of the Montana State Beekeepers' Association will be held March 11 and 12 in the basement room of the Parmly Billings public library at Billings. F. E. Clift, Huntley, Mont., is secretary of the association of whom a program and information may be obtained.

The meeting of the Ohio Beekeepers' Association during farmers' week at the Ohio State University, Columbus, was a success. The following officers were elected for the ensuing year: Dr. Ernest Kohn, Grover Hill, president; F. B. Moore, Columbus, vice-president; Prof. J. S. Hine, Columbus, secretary-treasurer; J. E. Venard, Akron, and Mel Pritchard, Medina, members of the executive committee.

Hamlin B. Miller, Marshalltown, Iowa, vice-president of both the National Beekeepers' Association and the Iowa Beekeepers' Association, died at his home on the afternoon of Jan. 31, after a long illness due to diabetes and erysipelas, at the age of 57. Mr. Miller was widely known to the beekeepers of the middle West, and was a familiar figure at many beekeepers' meetings held within and without his own State.

A. L. Boyden, in charge of the Airline Honey department of the A. I. Root Co., will leave New York early in March for a somewhat extended trip to European honey markets, expecting to visit important market centers in England, Ireland, France, Belgium, and Holland. His special purpose is to investigate the new possibilities in Amer-

ica's foreign honey trade, and he is the first American to undertake such a mission. His trip may have very important results for the honey-producers

of the United States, and Gleanings has Mr. Boyden's promise to report to its readers on American honey prospects in European markets.

The beekeepers of Herkimer County, N. Y., organized the Herkimer County Beekeepers' Society on Jan. 8 at the office of the Farm Bureau in Herkimer. A lively campaign for membership is being carried on in the hope that every beekeeper in the county will become a member of the new society. The officers are: Lewis J. Elwood, Fort Plain, president; Geo. P. Walrath, Ilion, vice-president; C. Gardner, Herkimer, secretary-treasurer.

As Gleanings goes to press, the annual convention of the National Beekeepers' Association is in session at Chicago. The total attendance is about 125, of whom 30 are members in full standing. All the speakers on the program are present with the exception of C. P. Dadant and E. D. Townsend. Francis Jager spoke on "Beekeeping and the New Era;" Miss Iona Fowls, on "Pushing to the Front in Beekeeping;" Colin P. Campbell, on "A New Organization of Beekeepers;" Dr. E. F. Phillips, on "Factors Influencing the Secretion of Nectar;" W. H. Hall, on "Market Information on Honey Furnished by the Bureau of Markets;" Prof. F. Eric Millen, on "Beekeeping as Seen by a Bee Inspector;" Chas. B. Justice, on "Organization;" Kenneth Hawkins, on "Beekeeping in Dixie;" H. F. Wilson, on "Organizing Local Societies;" E. G. Baldwin, on "Extension Beekeeping—Fact or Fiction?" The interest in the sessions has been excellent, and some of the discussions were very warm, especially that concerning organization as brought out by Mr. Justice, manager of the California Honey Producers' Co-operative Exchange. High tide of the convention was reached when Dr. C. C. Miller, wife, and sister arrived. They were given an ovation, and the Doctor took part in the program. The annual meeting of the Chicago-Northwestern Beekeepers' Association (held in conjunction with the National convention) on Feb. 18 was attended by 65 beekeepers and the interest was excellent. National officers elected for this year are: F. B. Kindig, East Lansing, Mich., president; A. Sly, Birmingham, Mich., vice-president; Chas. B. Justice, Los Angeles, Calif., secretary; David Running, E. S. Miller, Floyd Markham, Mrs. Cora Polhemus, and Dr. A. C. Baxter, executive committee. Place of meeting next year, Buffalo, N. Y.

QUESTIONS.—

(1) In working for extracted honey, why are stories tiered up four and more stories high? Why not extract a super when filled, replacing the same with an empty super or a super just extracted? (2) When hives are removed from their cases and placed on their stands in late spring after the bees have begun to fly freely, will there not be a great loss of bees, since they are not only moved from their old place but also faced in a different direction? (3) What is the difference between Langstroth and Hoffman frames, especially as to size? Which is preferable? I understand the Hoffman is the standard (being regularly furnished by the supply houses, Langstroth frames not even being listed). (4) Referring to the hole sometimes used above the entrance, how far above the lower entrance should it be bored?

Wisconsin.

Answers.—(1) Some beekeepers extract before the close of the season; but if honey is left on the hive for a time it becomes much riper and better-flavored. If extracted as fast as filled by the bees there would be danger that the honey would be so thin that it might ferment. (2) When removed from their winter cases colonies should be left in the same grouping and the hives facing in the same direction as when in the case. If moved to entirely new locations, as you suggest, there would certainly be drifting; and in order to even up the colonies it would be necessary to equalize the bees, which would certainly be a great deal of trouble. This is the method employed by as good a beekeeper as Ira Bartlett, East Jordan, Mich. Yet we can hardly recommend it, since it is much more simple to prevent the drifting than to remedy the trouble. (3) The Langstroth and Hoffman frames are the same size; but the Hoffman allows for equal spacing by projections on the end-bars. The Hoffman frames are now standard, and are a decided advance over the Langstroth. (4) The hole is usually placed two or three inches above the entrance.

Question.—Can the best New Orleans molasses be used as a feed for bees?

New York.

A. H. Moore.

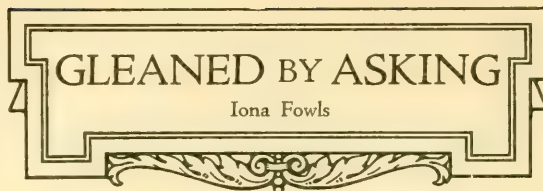
Answer.—Not during the winter, since it would cause dysentery. Tho bees do not take it readily, it may be used safely as soon as the weather becomes warm enough to permit the bees to have several flights each week.

Questions.—(1) Please give me a recipe for making bee candy. (2) Would a cellar where there is running water all the year round, and where the temperature never goes below 40 degrees Fahr., be as good as a cellar where it gets much colder but is dry?

Pennsylvania.

Chester Steinbacher.

Answers.—(1) Put granulated sugar in a granite dish and add a little water. Place the dish on the stove and keep stirring until the sugar is all dissolved and the syrup is very thick. Then bring the syrup to a boil



GLEANED BY ASKING

Iona Fowls

and keep on with the boiling, without stirring, until when you dip your finger in cold water, then into the boiling syrup and immediately back

into cold water again, a thin film of hardened sugar on your finger will just crack when you bend your finger. At this state the syrup should be removed and poured into paper pie plates, placed where they are to stand until cooled, and the syrup poured into them immediately after removing from the fire. Do not scrape the dish when pouring out the syrup. The candy when cool will be hard and transparent. This kind of candy is not wasted as much as a softer candy by parts of it dropping to the floor of the hive, but it is more difficult to make and get just right. (2) Yes, better. If the ventilation is right, that dampness will do little harm.

Question.—I have combs of sealed stores stored in hive bodies where they are exposed to freezing weather. The cappings are bursting, and the honey is dripping. How can I prevent this?

West Virginia.

P. B. Cook.

Answer.—If honey in the comb is allowed to freeze, the wax contracts so that the combs are broken, and the honey runs out. In order to prevent this the honey should be stored in a temperature between 80 and 90 Fahr. Not only will this temperature prevent the combs from breaking, but the honey would be less likely to granulate.

Question.—Will you kindly let me know how to prepare the inside of any tin vessel so that, if melted wax is poured in, it will not stick to the sides when cool, but may be removed.

Pennsylvania.

Chas. Reynders.

Answer.—Hot wax will not stick to clean new tin; but if the vessel is at all dirty, or if there is rust in the cracks or sides, then the wax will stick tightly. In such a case the inside of the vessel should be well soaped, and the soap allowed to dry before the wax is poured into the dish. When cold, the wax will withdraw from the sides and the cake may be easily removed.

Question.—Last summer I accidentally got two queens above the excluders, and at extracting time I found brood in 12 of the extracting-frames. This brood is now decayed. If I use these combs in the spring will there be any danger of disease?

West Virginia.

Joseph McCrickard.

Answer.—There have been in the past a few instances in which a beekeeper has believed that dead brood caused foul brood. However, we think it has been pretty clearly proved that this is not true. Foul brood is caused by the presence of bacilli, either *Bacillus pluton* or *Bacillus larvæ*—the former occurring in European foul brood and the latter in American foul brood. Now, brood may be allowed to decay until it has reached the last stages of decomposition, and still neither of these bacilli be found

when examined microscopically. Altho we feel sure that decayed brood will not cause foul brood, still we believe it would be a very poor plan to give one colony very many of such combs. If given more than one comb apiece, the colony might become discontented and swarm out. More than this, colonies in such condition could not be expected to have the vitality and resistance to disease that a normal colony would. Tho decayed brood does not cause foul brood, it is probably an excellent medium for its growth.

Question.—Which is better—to take bees right out of the cellar and move them to their location 10 miles away or give them a flight first and then move?

R. A. Schwarzkopf.

Answer.—That will depend to a great extent on the way they are moved. If by auto you could probably move them immediately after taking them from the cellar, with no bad results; but if several hours are to elapse, a flight would be much better before moving, tho we should prefer to give a flight before moving, in any case.

Questions.—(1) Now that the weather is rather warm, and the bees are more active than in the severe weather, is more honey used? (2) Will you kindly tell me if they ought to be fed about the latter part of March and the first part of April? (3) Is the packing to be taken off gradually or all at one time?

Miss Adelyn M. Lindner.

New York.

Answer.—(1) We do not think so—not unless the colony begins brood-rearing, in which case large quantities of honey are consumed. (2) If the colonies were left last fall with 25 or 30 pounds of stores as we advised, they should need no attention before fruit bloom. But if you have reason to believe them short of stores they should be examined on the first day warm enough for flight. If found necessary, a comb of honey or a cake of candy should be given. (3) Some seasons the packing may stay on in your locality as late as the last of May. It should not be removed until settled warm weather, when there will be no danger of chilling the brood.

Questions.—(1) I have 40 or 50 pounds of taffy candy. Would bees make it into honey after they begin to work in the spring? (2) I have one colony that is very cross. The others are not so cross. Can you tell me why they are cross?

Missouri.

S. M. Wickman.

Answer.—(1) Bees are not able to change candy into honey. They do, however, use candy stores. When they store such candy in the combs they simply dilute the candy and store the syrup, and the result is sugar syrup but not honey. We should like to give a word of caution concerning that taffy. Any candy that is the least bit soft should be placed in a dish inside the hive, on top of the brood-frames, covering the frames and dish warmly so that no heat from the cluster can escape. If the candy is placed directly on the frames it is liable to become so warm that it may run down between the frames, and cover the cappings of the brood, in which case the brood and perhaps many bees would be killed. (2) Colonies facing

toward moving objects sometimes are crosser than others; for this reason those located in an apiary destitute of trees or shrubbery have their attention more easily distracted and are sometimes quite cross. But if two colonies with the same environment and same treatment differ in temper, it is probably due to a difference in heredity. In such a case the cross colony should be requeened.

Questions.—(1) Why do not the manufacturers of foundation make sheets large enough so that when one puts the sheet in the groove of the standard frame it will not leave a space at the bottom between the foundation and bar? My bees seldom fasten the comb at even one place on the bottom-bar in spite of the fact that I wish the comb fastened on four sides, as I believe it insures solid combs for extracting, utilizes a needless waste of space, eliminates drone comb, and improves the general appearance of the comb. (2) On the side of the combs in one of my hives of hybrids I noticed a bluish tint on the cappings of the stores. As I am a beginner I wonder if it is not a sign of insufficient stores. (3) My hives face southeast. Is this the proper direction? Several beekeepers have told me that southwest is better.

George Kissam.

New Jersey.

Answers.—(1) If the sheets of foundation were made as large as the frames they would buckle, and crooked combs would result. For this reason a space is left at the bottom to allow for the stretching of the wax. Many plans have been made for getting the bees to attach the combs to the bottom-bars. Some use vertical splints, and others various ways of wiring. Some have used bottom starters with the ordinary full sheets of foundation; others have inverted the supers until the space was built in; and still others have used side entrances, believing that cold winter drafts at the entrance might be responsible for the undesirable space at the bottom. (2) There is nothing unusual in the color. Cappings over honey are usually white, bluish white, or yellowish in color. (3) Some good beekeepers—such as R. F. Holtermann of Brantford, Canada—pay no attention to the direction of facing; but we believe that, if colonies are to be left outdoors during the winter, they should face away from the prevailing winds, which are usually from the north and the west.

Question.—Would a frame of sealed brood, a frame of honey, and two pounds of bees with laying queen be the thing to start a colony?

Ohio.

Paul Short.

Answer.—Yes, if started in fruit bloom and kept supplied with stores, they ought to build up by July.

ANSWERS BY DR. C. C. MILLER.

Question.—What is the construction of your bottom-board and bottom-rack?

Answer.—The bottom-board is a plain box, two inches deep, open at one end. It is made of six pieces of $\frac{3}{8}$ stuff; two pieces $22\frac{1}{2} \times 2$; one piece $12\frac{1}{2} \times 2$; and three pieces $13\frac{3}{4} \times 7\frac{1}{2}$. To prevent the bees from building down in summer a bottom-rack is used. As material for a rack there are two pieces $18 \times 1 \times \frac{3}{4}$, and 21 pieces $10\frac{1}{2} \times \frac{3}{8} \times$

$\frac{3}{4}$. The little pieces are nailed upon the $\frac{3}{4}$ -inch sides of the two larger pieces, ladder-fashion, with $\frac{1}{2}$ -inch space between each two strips. The strips are allowed to project over at each end about an inch. The foregoing bottom-board and bottom-rack are for an 8-frame hive. For a hive of different size the proper changes must be made in some of the measurements.

Question.—Why don't you requeen every year?

Answer.—It may be that under some conditions, and for some beekeepers, it is advisable to requeen every year; but long experience has made me believe that for me, and I think for the great majority of beekeepers, it is better not to requeen on account of age, but only because a better queen may be given. Perhaps I ought to say unless a good deal better queen may be given. So I never requeen merely because a queen is old. One reason for this is that the bees know better than I when a queen should be superseded, and when the time comes that a queen should be superseded, they supersede her, whether she be three months or three years old. I think their superseding nearly always occurs toward fall, and they make a smooth job of it, with no interference in brood-rearing. When I do it, there is more or less interference with their household affairs, with the possibility sometimes of something like disaster. Besides, to requeen a whole apiary is something of a job, which I do not care to undertake without the prospect of material gain. One of the most important things, as I consider, is to breed from the best. But if I requeen every year, I cannot keep tab of a full season's work of each queen, and so I cannot tell which is best. On the whole, if I requeen because of age, I lose more than I gain.

Question.—It is not customary, when tiering up hives, to put the empty super next the brood-chamber, and do you think bees would carry honey to the fourth or fifth story if there was room for it lower down?

Answer.—For some years, when producing comb honey, I always gave the empty super next the brood-chamber, without changing the relative position of the supers above. In a good flow the bees promptly began work on the empty sections, doing more work there than higher up, but still they continued work on the other sections, even tho tiered up six or more high. Toward the close of the harvest, when little honey was coming in, if I put an empty super below, the bees put not a drop of honey in it, merely passing thru it to work above. In either case bees carried honey to the fourth or fifth story when there was room for it lower down. Perhaps you have in mind extracting-combs. If a super of empty combs were given below in a full flow, I should expect more work in it than in the section-super, but still that the bees would continue work in the top story. If given at the wane of the flow, instead of being neglected as was the empty section-super, I should expect it

to have chief attention, with little or nothing done above.

Question.—Referring to my story of the swarm following the wheelbarrow, page 23, this comes: "As to bees hearing, E. R. Root has made the statement repeatedly that hybrid bees would behave as you describe, but that Italians would not. Would this prove that hybrids can hear and that Italians cannot?"

Answer.—I'm unwilling to believe that Italians are deaf, and I wouldn't like to impeach the credibility of the witness. So I prefer to explain it by citing the well-known fact that different kinds of bees do not always act the same under the same conditions.

Question.—How many worker-cells to the square inch?

Answer.—It is usual, and perhaps correct, to estimate 5 worker-cells to the linear inch. Based on this it is common to say there are 25 cells to the square inch, or 50, counting both sides. This would be correct if the cells were square; but they are hexagonal. A little comparison will show that a hexagon a fifth of an inch across does not contain as much surface as a square a fifth of an inch across. So as the hexagon contains a smaller surface there must be more hexagons than squares in a square inch. As a matter of fact, if there are 5 cells to the linear inch, there are $28\frac{13}{15}$ to the square inch, as given by Cheshire, or $57\frac{11}{15}$, counting both sides. So instead of saying 25 and 50 are the numbers for one or both sides, it is a good deal nearer the truth to give the numbers as 29 and 58. The difference is such that a surface containing 1,000 cells, estimated the usual way, will contain 1,155 cells, estimated correctly.

Question.—On page 28 Dr. Miller says that "near the top-bar is the very place where the foundation stretches the most." Do you mean stretches or expands, Doctor? Douglas D. Brearley.

Answer.—English is one of the languages that has always troubled me, and I'm not sure that I know any too well the difference between expanding and stretching. And when I read in the dictionary that to stretch means to be drawn out or expanded, I feel there is danger of failing to make the proper distinction. However, when a piece of beeswax thru the effect of heat becomes larger in dimensions I have no doubt all would agree that is expansion, and when I pull on a strip of foundation six inches long and make it half an inch longer, I think it stretches. Then when a frame of foundation at 50 degrees is put into a brood-nest and brought up to 90 degrees or more, I feel very sure it expands. Indeed, I feel quite sure of it without any measuring. But when I take it out and find that a cell which upon being put in was an inch from the top-bar is now a quarter of an inch farther down, I think I am not far out of the way in saying it has stretched a quarter of an inch. So while there is, if I am correct, both expansion and stretching, is not the stretching the thing to which the beekeeper objects?

LAST month we arranged for the purchase of colonies. This month it will be necessary to decide whether to produce comb honey or extracted; and, having settled this important question, to order our needed supplies.

Comb Honey or Extracted.

During the war we urged all our readers to produce extracted rather than comb honey, simply because the world was starving for more sweets, and we knew that more extracted honey could be produced per colony. But now under the changed conditions we would advise all experienced beekeepers who have been producing comb honey in the past to return to their pre-war practice of raising comb honey. We believe there will be good money in it the coming year; and yet this applies only to the experienced beekeeper—not to the beginner. The latter would do well to confine himself entirely to extracted-honey production until he becomes sufficiently skilled to take up the expert work of producing comb honey.

Aside from the extractor, the comb and the extracted-honey outfits do not differ materially in price the first year; and in succeeding years the advantage is all in favor of the extracted-honey outfit; for the same combs in which the bees store honey the first year may be used repeatedly year after year, while the sections in which comb honey is stored must be replaced at considerable cost every season.

Now, comb is made of wax, which is a secretion from certain glands of the bees; and for the production of a pound of wax it is probably necessary for the bees to consume from five to fifteen pounds of honey which might otherwise be sold as surplus. (Surplus is honey which the bees produce in excess of their winter needs.) Therefore, besides the extra cost of supplies the beekeeper loses considerably from the fact that bees run for comb honey are compelled each year to build all the comb in which they store their surplus honey. Such comb would quite likely contain as much as three pounds of wax and might therefore require 15 or more pounds of honey for its construction.

As previously mentioned, comb-honey production requires far more skill in order to produce a good crop, and at the same time keep down swarming. The section boxes are so much smaller than the combs the bees naturally build, that bees do not enter them as readily as they do the large combs used in extracted-honey production. Therefore it is sometimes necessary to use certain inducements to get the bees started in section-supers. Also, the extracted-honey man finds that giving an abundance of room helps greatly in the prevention of swarming, while the comb-honey man is compelled to

TALKS TO BEGINNERS

By Iona Fowls

keep his colonies more crowded; for otherwise the end of the season will find him with a lot of unfinished sections on his hands. Extracting-combs of

ripe honey one-third or more unsealed will, when extracted, result in first-class honey. Sections one-third sealed must be sold at a low price.

Furthermore, extracted honey may be produced in many localities and in many seasons when comb honey would be an absolute failure; for, in order that any quantity of comb be built, it is necessary that the nights be warm, as it is during the warm nights that most of the wax is secreted and the combs built.

Oftentimes a beginner is able to find a larger beekeeper in his own locality who will be willing to do his extracting for a small sum. We have found that even one cent a pound is a good proposition on both sides. If one prefers the fun of doing his own extracting (and there is a real pleasure in it), he will be able to purchase a two-frame extractor at a moderate price. And this size will be quite large enough for some time to come. And when he later decides to go into the business a little heavier it will, doubtless, be possible to sell the small extractor and purchase a larger one, either new or second-hand.

Our advice, then, to the beginner is to use extracting-combs rather than sections, either producing chunk honey or, preferably, extracted. Because of the troublesome delays that are sure to occur later on, March is none too early to place one's order; and we strongly recommend that the supplies be ordered today.

Extracted Honey Outfit.

The smallest practical outfit for extracted-honey production should consist of a complete hive with fixtures and supers—a bee-brush, bee-hat, smoker, hive-tool, queen-excluder, bee-escape board, uncapping-knife, and a honey-extractor. This provides for only one colony of bees. It would be distinctly to the beginner's advantage to double or triple the number of bee-escape boards, queen-excluders, supers, and hives with contained fixtures; for with two or three colonies he would have a chance for comparison, and, we believe, would learn beekeeping much faster.

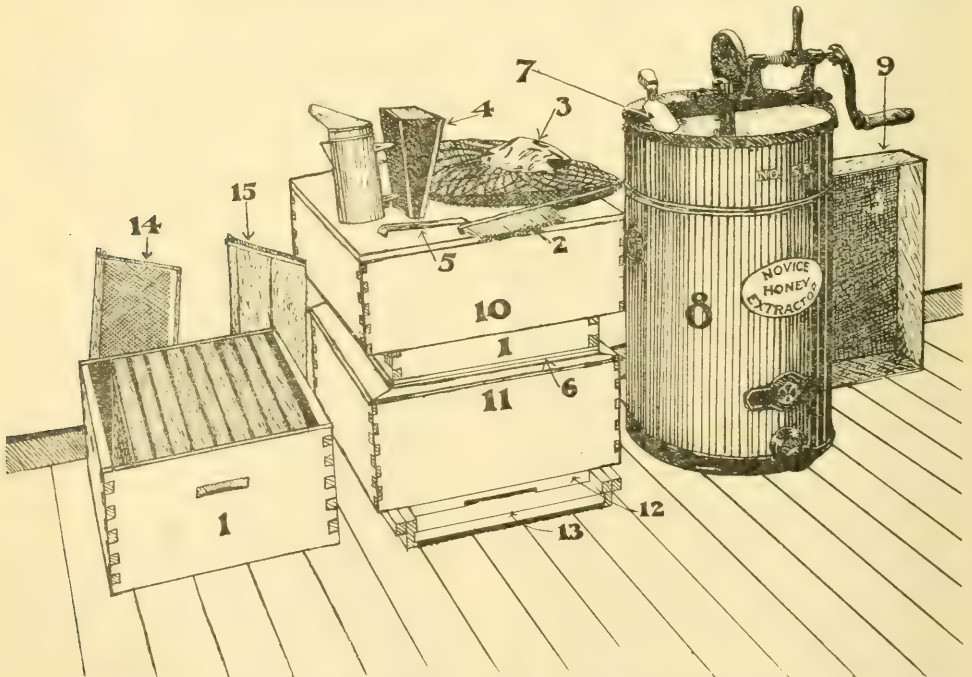
A single-walled hive exactly identical with the deep super may be used, but in this case it will be necessary to provide also a winter packing case if the colony is to be wintered outside. Therefore we consider the double-walled hive much more practical for the beginner, and, accordingly, recommend the double-walled ten-frame hive equipped with ten frames containing full sheets of foundation, metal telescope cover,

inner case, chaff tray, division-board, bottom-board, entrance-closer, two or three deep or four or five shallow supers furnished with frames containing full sheets of foundation. The hive body, or lower story of the hive, rests immediately upon the floor-board which has at the front an entrance-contractor for regulating the size of the entrance. At each upper end of this box or hive is a metal support, or rabbet, holding suspended lengthwise of the body ten movable Langstroth frames $9\frac{1}{8} \times 17\frac{1}{8}$ inches in size. Inside of these frames, attached to the top-bar by means of wax, and supported by fine wires, are full sheets of foundation, or beeswax stamped with an impression of the natural base and central walls of honey-comb. During the honey flow, or while the bees are being fed, new wax is added to these shallow walls, and the foundation built out into comb for storing honey and raising young bees. Here in this lower hive or lower story, called the brood-chamber, all the young bees are raised, the queen being allowed to lay eggs only in this story. (Exceptions to this statement will be mentioned later.)

As soon as the bees seem to need more room there is placed above the brood-chamber a queen-excluder; which is an arrangement of perforated zinc, or of wire rods, which allows the workers to pass freely back and forth between the lower and the upper chambers, but excludes the queen

from the upper story on account of her larger size. When producing extracted honey this excluder is necessary in order to keep the queen from laying in the supers or upper stories that contain the surplus honey. A few beekeepers allow the queen access to any or all of the supers, but we can not recommend this; for, besides the extra trouble and inconvenience, the practice also results in a poorer grade of honey.

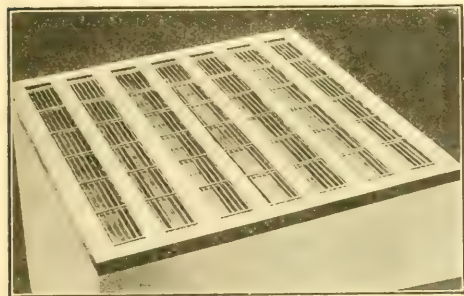
Over the queen-excluder is placed the super filled with frames of foundation. The super is a plain dovetailed box without top or bottom. The inside dimensions may be the same as that of the lower double-walled brood-chamber, or it may be shallower. Some prefer shallow rather than deep supers, as they are lighter and more easily handled, may be put on early in the spring with less loss of heat from the brood, and make it possible to keep separate, in different supers, different flows of honeys varying in color and flavor, such as clover and buckwheat. Some advocate deep supers so that all the frames in the hive will be interchangeable, which is certainly a handy arrangement. Others compromise by having one deep super for each hive and two or three shallow ones. This arrangement makes it possible to give the queen access to two stories when desired, and yet to retain most of the advantages of shallow supers. Over the super is placed a thin inner cover or early in the season, when no super is used,



EXTRACTED HONEY OUTFIT

1, Extracted-honey super; 2, bee-brush; 3, bee-hat and veil; 4, smoker; 5, hive-tool; 6, queen-excluder; 7, honey-knife; 8, extractor; 9, tray for winter packing; 10, telescope cover; 11, double-walled hive; 12, entrance-closer; 13, bottom-board; 14, frame of foundation; 15, tight-fitting division-board; 16, inner cover over (1) but not shown in cut.

this cover is placed just above the brood-chamber. Above this is the large telescoping cover. The chaff tray, which is to be filled with leaves and placed over the colony during the winter, and the tight-fitting division-board, that is slightly larger than an ordinary frame, but may be suspended in the hive in the same way when contracting the colony for winter, will not be needed during the summer and may be stored away



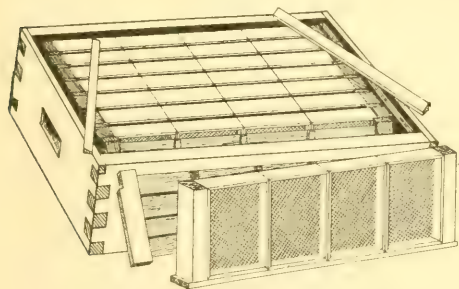
THIS KEEPS THE QUEEN OUT

Queen-excluder (sometimes called honey-board) separating brood-chamber from supers and so preventing queen from going into supers and raising brood in the extracting frames. It is made of alternate strips of thin wood and strips of soldered wires.

until ready to pack the bees for winter. It would hardly pay for the beginner to buy the division-board since he could easily make one himself. It may be of thin wood and should be made to fit the hive tightly so that bees cannot pass beyond it.

Comb Honey Outfit.

Those who, in spite of the objections we have pointed out, still wish to produce comb honey, will need the same equipment just



COMB-HONEY SUPER AND SECTIONS.

Deep comb-honey super containing oblong sections, all supplied with full sheets of foundation. Square sections may be used if desired, but the shape here shown is preferred. In the foreground of the illustration is shown a single section-holder, containing the regulation four sections with full sheets of foundation. This holder is set into the super and holds the sections there. Between this single section-holder and the super is shown the end of a section fence or "cleated separator." This fence, or separator, is placed between each row of four sections in each individual section-holder to keep the sides of the combs even and uniform and at the same time give bee-space between the combs.

described except the uncapping - knife, queen-excluder, and extractor. Also, instead of the extracting-supers, four or five comb-honey supers will be needed. These



PARTS OF COMB-HONEY HIVE.

Comb-honey hive, showing single-walled hive of super used as brood-chamber. A double-walled hive should be substituted for this brood-chamber if the colony is to be wintered outdoors and no packing case used. If desired the beginner may make his own hive stand or omit it entirely and substitute bricks or blocks to keep the hive from the ground. should be filled with sections containing full sheets of foundation.

Suggestions on Supplies.

Whether one is running for comb or extracted honey, it would be a good plan to have an extra hive to have any possible swarm. One or two extra supers, with included fixtures, would also be a safe precaution. Unless one happens to be a pretty good carpenter the first hive should be purchased nailed and painted (NP). With this for a pattern one may later enjoy nailing up his own supplies, in which case he may purchase somewhat cheaper by buying in the flat or knocked down (KD).

The next issue will deal with the inmates of the hive, describing the development and home life of the various members.

Beginners' References in This Issue.

The following articles in this issue of Gleanings will be of especial interest to beginners: "Anne Lester and Daddy Lowe," page 147-148; "How He Began Beekeeping," page 154; second and fifth paragraphs of "Siftings," page 157; "Beekeeping as a Side Line," page 160.

SOME years ago an old farmer living about ten miles away brought us a wagonload of basswood lumber. He was told to take it down to the lumbyard and the foreman would unload it and give him a slip of paper giving the measurements. He directed this man to take the paper up to the

office in the factory and get his pay. Well, after receiving the paper he put his hand in his pocket for his spectacles, and then discovered he had left them at home when he changed his clothes. Of course he could have taken the paper so to the office; but it was near night, and he was in a hurry to get home, and so he concluded to keep it until he drew some more lumber. After arriving home, and with the aid of his specs seeing how small the price, as it seemed to him, had been allowed him for the lumber, he came straight back to our factory and declared he would not sell it for any such price—that he would draw it all back home first. But as it was seasoned lumber it had gone to the planer and was used up. Under the circumstances he demanded pay according to his own valuation. In this predicament he came to me with the foreman, and I was to decide. I explained to him that we were buying lumber every day, and the price we allowed him was the same we paid everybody else. I told him we were better prepared to know the value of such lumber than he was. But he was stubborn and contrary. He was a good deal stirred up, and finally gave me a piece of his mind. Among other things he said something like this:

“Mr. Root, we know you pose as a good man, a church member, etc.; but I have heard before that, altho you try to keep your own hands clean, you employ men on purpose to do the dirty work to swindle us unsuspecting farmers.”

I remonstrated with him; but he finally gave me a string of abuse something like the opening letter in my Home paper for August. I think I asked him if he was a professing Christian. He admitted he was.



If therefore thou art offering thy gift at the altar, and there rememberest that thy brother hath aught against thee, leave there thy gift before the altar, and go thy way; first be reconciled to thy brother, and then come and offer thy gift.—MATT. 5:23, 24.

If any man would go to law with thee, and take away thy coat, let him have thy cloak also.—MATT. 5:40.

The peace of God, which passeth all understanding, shall guard your hearts and your thoughts in Christ Jesus.—PHIL. 4:7.

I finally interrupted the talk by telling him he would have to excuse me as it was time for our Saturday afternoon prayer meeting. This seemed to stir him up worse than ever. I do not recall whether I invited him to go with me to prayer meeting or not; but I rather think I did not. I hastily got hold

of my old Bible and reached the old brick church just as the meeting was being opened. I soon decided that I was in no shape for prayer meeting. It was so long ago that I can not be exact. But either I recalled the first of our texts or I absently opened my Bible, and just then my eye happened to hit the exact place. Did it really *happen*? I can not remember now; but I am sure my little prayer, “Lord, help,” must have welled up at about this crisis. I never had noticed the verse before; but that expression about bringing my gift to the altar made it seem just then plain that the prayer meeting was the altar, and whatever I should have to say or suggest (I always take some part in every prayer meeting) would be the gift referred to in the passage. I considered the situation just about a minute; and then leaving my Bible on the chair I rushed out, hoping I might be able to find my irate brother. Now another thing happened right there near that old church—at least most people would say it all “happened.” I ran across my irate friend not very far from the church. I put out my hand to him, but he declined to accept it. Then I said something like this:

“My good friend, you said you were going to consult your lawyer.”

“Yes, I am now on my way over to his office.”

“Well, I will go with you and we will state the case to him; and if he says I should pay you that amount of money under the circumstances I will do it.”

His face softened at once, and he replied, “Why, Mr. Root, that certainly will be fair. But don’t you want to consult your lawyer?”

"No, my friend. I do not know who your lawyer is; but I will submit the whole matter to him, and abide by his decision."

A good deal to my surprise his lawyer decided against me. But there was nothing to do but to keep my promise. I protested something like this:

"First, our friend neglected to carry his credit slip to the office as he was expected to do and get his money. Second, we were in no way to blame for the fact that he had forgotten his spectacles. Third, he demanded a price away beyond the market value and what we had been paying other people right along for months past."

After our friend had started home the attorney followed me and said something as follows:

"Mr. Root, I know you are a little surprised at my decision but I have known this old gentleman for years. He has tried in his way to lead a Christian life. In fact, he used to preach occasionally years ago. He has been badly used, and he is a little rude and inclined to rush to the conclusion that everybody wants to cheat him. This small amount of money means a great deal more to him than it does to you. But he is headstrong, and probably would not be satisfied with anything else."

All this happened so quickly that I got back to prayer meeting and picked up my Bible, and when opportunity was offered I made something of an apology for rushing out as I did at the beginning of the meeting, and I told them the whole story; and altho I had come back with a few dollars less I had a good conscience, void of offense toward either God or man, and with a better understanding of the precious words of our text than I had ever had before.

My good friends, I hope this little story will help you to get over some of the rough places in life. This old gentleman was a good friend of mine after that until his death. I do not think he ever apologized for his unkind words; but perhaps that was not his way of doing. During this long busy life of mine I can not recall now that I ever had a lawsuit—that is, where I alone was concerned in the matter. At one time, as some of you remember, the beekeepers of our land, and perhaps other lands, were threatened with a monopoly of the one-piece honey-boxes. For the good of the beekeepers I went into an expensive lawsuit, and it was finally carried up to the United States Supreme Court. But this was a matter where the *public good* was at stake.

A friend of mine suggested yesterday

that the beautiful text about loving our enemies and doing good to those who hate us refers unquestionably to personal enemies and not to the enemies of God; and he suggested that in fighting against Germany we might consider Germany as the enemy of God and the enemy of righteousness, if there ever *has been* such an enemy since the world began. The text I have been quoting unquestionably refers to misunderstandings and lawsuits between neighbors. Of course, it may have a larger application to nations. But even the Savior himself, when speaking of upholding the laws of God and the laws of man, said, "I came not to send peace on earth; I came not to send peace, but a sword,"

Just one word more in regard to the concluding text. When I came back to prayer meeting I had a little less money in my pocket; but I had in my heart "the peace of God that passeth all understanding." There are two morals that I should like to impress with the above story—the habit of attending regularly your weekly prayer meeting. At the time of this story our prayer meeting was at 2 o'clock on Saturday afternoon. Let me tell you of one incident of years ago. A stranger came, I think from somewhere down east. He got off the stage at the American house in the center of our town, and asked the landlord how he could manage to get hold of A. I. Root as soon as possible. The landlord answered:

"My friend, if you will sit down in that chair, right there, A. I. Root will go past you inside of five minutes, or perhaps a little more."

The stranger laughingly replied:

"Why, how is it possible you can be so sure that A. I. Root will be here as you say?"

The hotel-keeper, who was not a Christian—in fact, he was a good way from it, I fear, replied:

"It is now just about time for the bell to ring for the prayer meeting over in that old brick church; and Mr. Root is always on hand unless something very unexpected happens. You will see him in just a few minutes coming at a very rapid pace, for he is a very busy man, with his Bible in his hand."

Now, this landlord respected me because of my well-known habit of attending prayer meeting; and had it not been for this prayer-meeting habit of mine I might have had a troublesome lawsuit.

The second moral is the advantage of being in daily touch and contact with God's holy word. If you, my good friends, each

and every one of you, have not a Bible of your own—one you are so familiar with that you can find any precious text you want at a minute's notice, go and get such a Bible, and get in touch with its precious pages.

DIRECTOR C. E. THORNE, OF THE OHIO EXPERIMENT STATION; ALSO SOMETHING IN REGARD TO VEGETARIANISM VERSUS A MIXED DIET.

After Doolittle's death last June I went back to the copies of the old *American Bee Journal* to see when it was that he commenced writing for that publication in regard to bee culture. I made mention of this on page 498, August GLEANINGS. Well, in looking over those old volumes away back in the 60's I was several times surprised to find familiar names; and among them was our good friend Professor Thorne. His first communication was dated Nov. 8, 1868. His residence then was Selma, O.; and from that time on for some years he was more or less a correspondent of the bee journals. And now I recall that in one of his communications not very long ago he made some reference to having been a "bee man" in times gone by. Well, just now I have a letter from him that has given me much thought and study. In fact, the suggestion is not only novel but to me, entirely new. It has given me new light on this matter of animal food as a part of our diet instead of a strictly vegetable diet. Here is the letter:

IS NOT A BRIEF LIFE BETTER THAN NO LIFE AT ALL?

Friend A. I. Root:—I have come to share your reluctance to kill animals, but after all, is not the sum of animal happiness vastly increased by the meat eaters? If we ate no meat hardly one animal would be brought into the world where a thousand are now, and I know of nothing more full of unadulterated happiness than the calf or pig or lamb, destined after a short life for the slaughter, but meanwhile having every want supplied and ignorant of its doom, which finally comes almost or quite painlessly.

By the way, when I get to be Governor of Ohio, I am going to have a law made making it a penitentiary offense to use anything smaller than brevier type.

Yours cordially,

CHAS. E. THORNE.

Wooster, O., June 4, 1918.

The above opens up a new question, and I do not know but it may be applied to humanity as well as domestic animals; in fact, I added the title myself, to friend Thorne's article. Is it not more desirable to have even a short life than to have no life at all? I found a squib in the *Cleveland Plain Dealer* a short time ago, which read something like this:

A certain individual was always grumbling about his aches and pains and vari-

ous misfortunes. A friend of his said to him one bright morning:

"Well, brother Boggs, how do you feel today?"

"Why, I couldn't feel any worse if I were dead."

The above suggested to me the query, "How *does* a man feel when he is dead?" Of course, I am not raising the question now from the standpoint of the Christian. Let us consider it for a moment from the standpoint of the worldly individual who has no faith in God or anything else. Will he feel *better* when he is *dead*? Does a man who commits suicide really better his condition? He may be relieved from bodily pain and worldly trouble. I suppose the suicide expects annihilation. He is bent on destroying his body, and takes it for granted that the body is all there is of it. God forbid. Professor Thorne's letter above was probably called forth by what I said on page 370 in regard to killing one of my Eglantine pullets in order to have a chicken dinner. If we did not have any chicken dinners, thousands upon thousands of chickens would never have any life at all. Do they enjoy that life? My opinion is, after raising chickens more or less for over 70 years, that chickens when properly cared for are about the happiest creatures on the face of the earth. Before a chick is many hours old it will be cutting up antics, pretending to fight others like itself, etc.; not only chickens but lambs, calves, and all the domestic animals. *They* enjoy life, even if it is a short one.

Of course all animal kind object to being killed. They make the most frantic efforts to preserve life as long as possible; but who knows that they really suffer? I think some one, who was once in the jaws of a lion, has said that he felt no pain at all when his bones were being crushed. It was only afterward; and I think that some of the poor soldiers in our war have expressed themselves in a like manner. They felt no pain at the time of being wounded. If they had been killed outright is it not *possible* there would have been *no* suffering? I think investigation will show that the nations of the earth that make the most progress, intellectually and every other way, are those that live on a mixed diet.

As I write just now, Oct. 21, the physicians of our land are recommending for the Spanish influenza that the patient take only liquid food and stay in bed, etc. Now, as I take it, this nourishing liquid food or soup is, as a rule, made mostly of meat of some sort. There may be soups made entirely of vegetables that have proved to be

as nourishing, altho I am not sure of it. Both Mrs. Root and I at different times have been near death; and both of us were built up and brought back to health on a diet composed largely of finely ground beefsteak.

In regard to small type in our journal, if we follow our good friend's suggestion, a great lot of valuable matter would have to be left out of *Gleanings* and many other periodicals.

A LETTER FROM THE A. R. C. F. M. SHAOWU MISSION, EMBRACING THE CITIES, SHAOWU, KU-ANG TSEH, TAI NING, KIEN NING, TSANG LOIH, SHUN CHANG, YANG KEO.

The following is an interesting letter to me from a foreign missionary:

Dear Mr. Root:—Recently I was quite interested to see in the *Scientific American* a short paragraph in regard to your success in utilizing wind power for charging automobile batteries. It is an aggravation to see so much power constantly going to waste over our heads and all around us, and be able to utilize so little of it for mechanical purposes; but, just like the power of the sun, it is so diffused.

In a recent copy of the *Literary Digest* was an article, giving opinions pro and con as to the hexagonal shape of the cells in the honeycomb having been produced directly by the bees. I am summing in a little cottage about 3,300 feet above sea level. The walls are of earth tamped down, and are nearly a foot thick; and this gives a space of eight or nine inches between blinds and windows. When we came here July 1 a swarm of bees had settled in one of these spaces; the combs were parallel to the window, and the supply of honey had fallen off just as the comb next to the window was nearly finished. These new cells were every one of them empty and hexagonal with not a sign that any had ever been occupied, or that any had originally been circular. Manifestly, the comb had not been built, one cell at a time; and each little wall had been constructed as a partition between two cells. Of course the walls were straight between the two. The wonder is that all the honeybees the world over have these hexagonal cells. Granting that all these things have come about by evolution, there must be a guiding Intelligence back of it all.

Recently I bought a ream of paper, and had letter heads printed on it as above; and then came word that we were "The Shaowu Mission." Little did we dream of this when we opened the station, Thanksgiving Day, 1876. Present force: five families, four single ladies, myself, four babies, four children, one lady coming—in all, 28 adults, 24 children. The missionaries and their children who, off and on, have lived here during these 46 years, number 52; and 51 of them are still alive. Mrs. Walker lived longer than did her sister who died of the same disease. I can still do a good half-day's work. Truly *God* has been good to Shaowu.

Some of the children may now be somewhere in France. Our Father keep them safely. Cordially yours,
J. E. WALKER.

Shaowu, China, Sept. 9, 1918.

GERMAN BEER AND STARVING GERMANY.

America has cut off using grain by the breweries, that we may have food to spare for the starving nations; now before we

respond to Germany's call for help in the food crisis, shall not Germany, in a like manner, give the grain to her starving poor, instead of letting her breweries have it? When I read the clipping below in our daily paper, I gave a loud *Amen!* Cannot you, reader, do the same?

UNTIL INDEMNITY IS PAID.

Editor Plain Dealer:—Sir: One of the first items in the peace terms should be absolute prohibition of the manufacture, sale, purchase, or use of alcoholic beverages in any form, until the entire war indemnity is paid in full. (This could be enforced by an army of occupation.) It was a booze-crazed brain that started the conflagration, and a booze-crazed brain only that could have been guilty of such dastardly crimes. The brutes are now begging for bread, while they are using millions of tons of the best breadstuff for making booze. Take it away from them; it will be a severe punishment in itself, but I can see no better way to give to all, from the least to the greatest, a little punishment for the crimes they have directly and indirectly helped to commit. The punishment will be severe, but the world will be better for it, the war indemnity will be paid in half the time, and a brighter light will dawn on the next generation of Germans.

Don't misunderstand me; this is not the only punishment I would favor, but only in addition to a just punishment to be meted out to those from the lowest to the highest, who are personally guilty of any of the crimes committed.

Oberlin, O.

CONSTANT READER.

MILK AND HONEY FROM SWEET CLOVER.

My Dear Brother Root:—December GLEANINGS just arrived today, and, in perusing it this evening, in your department I noticed reports on sweet clover for pasturage. You stated there was nothing said about bees, so I give now my report including the bees.

I bought three colonies of bees late in May, with partly filled supers. One colony had already swarmed. I moved them about a mile to my own place, and let them finish white clover. They weighed 91½ pounds, including weight of sections. Three miles out my son-in-law has a farm which had 13 acres in sweet-clover pasturage. He let the clover get a good start before turning the stock on it, as it was all the pasturage on the farm. Six or seven cows, a number of hogs, and four horses constituted the stock.

Those cows went into the pasturage *thin*, and, as I watched results, I found them gaining. The occupant, Mr. Oldenburg, told me that the quantity of milk was increased, and for the first time he was not having to use any chop feed for the cows. He took pride in showing his cows to the neighbors because of the way they were gaining flesh, and at the end of the season they were in better flesh than many that went to the butchers' pens. I asked Mrs. Oldenburg if she noticed any difference in the flavor of the milk. Her reply was that she and her husband had observed that they never had such nice, sweet milk before, and that the butter was so much firmer and better than usual.

It was getting well along in the season, and white clover was gone, with but little sweet clover in our neighborhood. One night my grandson and I loaded the three colonies in the Ford and transferred them to the farm. In 30 days I went out, brought them home, and weighed up 128 pounds in finished sections. This was early in September. I put in 150 new sections for buckwheat, but on account of bad weather and killing frosts I got only from 80

to 100 pounds. Other bees in the neighborhood also were in working distance—how many colonies I could not say. That field was sowed the summer before with a nurse crop of barley. The stand was not good as we have a soil too sandy for sweet clover to do its best.

In spite of all the pasturing it seeded heavily; but, as I feared to use it as pasturage for another year, I seeded to wheat, and it is looking fine.

I expect that the clover seed will come up in the spring, and after the wheat harvest will make a fine crop of hay or pasturage. A field here at home was sown with mixed seed of different clovers with alfalfa and some sweet clover, the latter making a rank growth, as this soil was well fertilized and had been limed and ashes put on it. From my three colonies I got 300 pounds of comb honey and have them home again well packed for winter, with an abundance of stores for any emergency. I did not do like Billy Sourweed—"trade my bees for the old mule to haul home sugar in two-pound lots," but just kept the bees and used honey. Farmers here are just beginning to take to sweet clover. My 128 pounds was secured just at a time when usually but little honey is coming in, but the stock pruning the clover kept it branching and blooming afresh thru that period of usual shortage.

M. L. BREWER.

906 Main St., Three Rivers, Mich., Dec. 2, 1918.

BEE CULTURE IN FLORIDA.

We clip the article below from the *Bradentown Herald*:

Fifty years ago, people thought I had gone crazy on bees. When after a time I announced I had secured a barrel of honey from one colony in *one summer*, some one was kind enough to say he didn't believe I ever saw a whole "barrel of honey." They didn't have honey by the "barrel full" "them days."

Well, during the past season our company filled a single order from the U. S. Government for *ten carloads* of honey. I won't tell you what it amounted to, for the figures might make you dizzy. Florida helped us out in filling the order to the extent of fifty thousand dollars' worth or more.

A few weeks ago I told you Mr. Daniel Abbott, a little east of town, received of us for honey over \$600.00. On visiting him recently I learn it was over \$1,200.00. Please don't accuse me of exaggeration. I think Mr. Abbott started in the spring with only about 60 good strong colonies. He must, therefore, have averaged close to 100 pounds per colony. At 20 cents this would be \$20 per colony on the average. Let me caution you that this past season has been extra good, and friend Abbott has had some years of experience. Said I:

"Friend A., you must have had to hire quite a little help to handle all these tons of honey."

"Help? Not a bit of help. I did it all myself." I think about ten years ago, Mr. Abbott came here an invalid. If you could see him now, chest and neck bare to the Florida sun and wind, you would laugh at any one calling him an "invalid."

A. I. ROOT.

CIGARETTES; A TESTIMONIAL FROM A SUFFERER.

I smoke cigarettes, too, but I wish I had never seen them. When I first started I smoked a few. I don't smoke as many as some do, but I smoke three or four packages a week. That is 45 or 60 cents a week wasted for 80 to 100 cigarettes and matches; and then one has to give some away. I am not tight, but it is money wasted. If I run out I do not know what to do. Is it harmful to have a

habit or to be a slave and worship idols? If I smoke a cigarette fast and inhale I can feel it go thru me and tingle to my toes. Sometimes I am dizzy.

Now, please do not tell me I ought to quit. I know that; but put it to a vote and see me help to stop them from making cigarettes and then quit. I just voted dry. I like the taste of liquor, but I keep away from it and vote dry.

Elwood City, Pa.

EDWIN A. WRIGHT.

Special Notices by A. I. Root

THE "BEAUTIFUL GROUND" BOOK.

The above is the title of the Reasoner Brothers' catalog for 1919. It seems a recent part of the business of this old-established institution, is to beautify the grounds of homes in Florida and other States, and the artistic pictures, in this book, of such homes, was a "revelation" to me. Of course, they are real photographs, printed on the finest paper and with the best of inks in colors. I have enjoyed visits to this celebrated nursery of tropical and semi-tropical plants, more or less for the past 25 years, and if you can't make the visit, I advise you to send for the 1919 catalog. You will find it an educator as well as a book of reference. Address Royal Palm Nurseries, Oneco, Florida.

POTATOE GROWING IN OHIO, MICHIGAN, BERMUDA, AND FLORIDA.

For 70 years or more, potatoes have been, more or less, my hobby. My good mother gave me my first lessons, in order to get me interested in outdoor work, that I might "live, and not die." Over 40 years ago I put out my first book, largely written by our lamented friend, T. B. Terry. It was soon translated into several foreign languages. In order to "practice what I preach," I spent a winter on Bermuda Island where they grow such beautiful "spuds," that bring such fancy prices in New York City. I also grew potatoes by the carload in the great potato region of northern Michigan. Recently I have been demonstrating the possibilities of new potatoes for the Northern markets, grown here in Florida in the winter time. Additions and appendices have kept the book well up to date, and the last one was added in November, 1918.

The Editor of *The Florida Grower* says, in issue of Jan. 11, in regard to the book:

One of my best friends in Florida, and in whose friendship I take a great pride, is A. I. Root, editor of GLEANINGS IN BEE CULTURE, who spends his winters in Florida. Mr. Root has mentioned *The Grower* very warmly in his splendid magazine many times, and he is a man who has done much work for Florida by the favorable publicity he has given his chosen location at Bradentown on the Manatee River. Mr. Root is over 70 years old and yet in many ways he is still a young man, taking great interest in his winter garden in Florida and writing many splendid articles about Florida for his paper. He is a devotee of the electric-driven automobile and at his winter home has a windmill arranged so that while his machine is in the garage the mill is generating electricity for his batteries and he is very proud of this innovation and writes to say that he is surprised that we did not mention it in our recent story of Bradentown.

Mr. Root is joint author of a book entitled "A B C of Potato Growing," and in this book appears an appendix relating to his experience with potato growing in Florida. We can offer this 400-page book in paper cover at 50 cents, and I recommend it as a work that should be in the hands of every amateur potato grower, as he will find information contained therein that will prove of considerable value to him. I wish that there were more of the men of Mr. Root's type in Florida, but believe that we are getting them very fast and that in time they will be here and that their influence will be so felt that Florida will be the best and most favorably known State in the Union.

You can order it of The A. I. Root Co., Medina, O., or of *The Florida Grower*, Tampa, Florida.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

Buckwheat honey in 120-lb. cases, at 17c per pound. C. B. Howard, Geneva, N. Y.

FOR SALE.—Clover, amber and buckwheat honey in 60-lb. cans. C. J. Baldrige, Kendaia, N. Y.

FOR SALE.—20 60-lb. cans buckwheat honey at 18c per pound. E. Gressman, Hamburg, N. Y.

FOR SALE.—Clover and buckwheat honey in 60-lb. tin cans. H. G. Gable, Romulus, N. Y.

FOR SALE.—Clover-amber honey in new 60-lb. cans. VanWyngharden Bros., Hebron, Ind.

FOR SALE.—20 60-lb. cans of light amber honey at 20c a pound, f. o. b. E. G. Shearing, Buhl, Idaho.

FOR SALE.—Extra-good quality clover or white aster honey, packed in 60-lb. tins, two in a case. H. C. Lee, Brooksville, Ky.

FOR SALE.—24 60-lb. cans choice buckwheat honey at 20c per lb., f. o. b. Akron, N. Y. Vollmer & Demuth.

FOR SALE.—Choice buckwheat extracted honey fully ripened by the bees, in new 60-lb. cans. O. W. Bedell, Earlville, N. Y.

FOR SALE.—Clover and buckwheat honey in 165-lb. kegs; also a Vandewort 12-inch foundation mill. Geo. L. Ferris, Atwater, N. Y.

FOR SALE.—1,560 lbs. fine buckwheat honey in 60-lb. cans. Some clover mixture. John W. Hosie, East Aurora, N. Y.

FOR SALE.—Michigan's Best extracted honey in packages to suit; white clover, raspberry, milkweed, buckwheat. A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE.—Dark amber extracted honey packed 12 5-lb. pails to case, or 50 5-lb. pails to barrel, or two 60-lb. cans to case, at 25c per pound. H. G. Quirin, Bellevue, O.

FOR SALE.—40,000 lbs. carload choice clover extracted honey. Was all left on the hives until after honey flow was over. Put up in new 60-lb. cans. J. N. Harris, St. Louis, Mich.

FOR SALE.—40,000 lbs. of No. 1 extracted clover honey and 35,000 lbs. of aster honey, both of extra-light color, heavy body, and fine flavor in 60-lb. cans. W. B. Wallin, Brooksville, Ky.

FOR SALE.—Clover, heartsease, No. 1 white comb. \$6.00 per case; fancy, \$6.50; extra fancy, \$7.00. 24 Danz. sections to case; extracted 120-lb. cases, 25c per pound. W. A. Latshaw Co., Carlisle, Ind.

HONEY AND WAX WANTED

Small lots of off-grade honey for baking purposes. C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

Beeswax wanted. Highest prices paid. State quantity and quality. E. S. Robinson, Mayville, N. Y.

WANTED.—Extracted honey, all kinds, and grades for export purposes. Any quantity. Please send samples and quotations.

M. Betancourt, 59 Pearl St., New York City.

WANTED.—Comb and extracted honey, also beeswax. Send samples.

C. S. Fryer, 386 Halsey St., Portland, Ore.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED.—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax. E. B. Rosa, Monroe, Wisconsin.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston. M. V. Facey, Preston, Minn.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.

Hoffman & Hauck, Inc., Richmond Hill, N. Y.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

FOR SALE

HONEY LABELS.—Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—100 all-zinc excluders, 19 1/2 x 14, 30c each; 50 18 1/2 x 15, 25c each. B. F. Averill, Howardsville, Va.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

WANTED.—To buy 200 or 300 colonies of bees, preferably in Northern Michigan. Closson Scott, 408 Belmont St., Warren, Ohio.

FOR SALE.—Basswood trees, 1/2 ft. at \$2.00 per 25, postpaid. Nicolleff County Nursery, St. Peter, Minn.

FOR SALE.—Comb foundation at prices that will save you money. Wax worked for cash or on shares. Send for price list. E. S. Robinson, Mayville, N. Y.

FOR SALE.—Perforated wooden well casing made of redwood, the best and cheapest well screen made. Send for descriptive circular. G. M. Hawley, La Mesa, Calif.

FOR SALE.—Tomato seed, Chalk's Early Jewel, Redhead, and Livingston's stone, three fine varieties, all three packages, 25c. J. F. Michael, Winchester, Ind.

FOR SALE.—Good second-hand 60-lb. cans, two to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) Full line of Root's famous goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—130 8-frame Ideal supers with fixtures for comb honey, \$65.00; 130 8-frame comb-honey supers for Wisconsin hive with fixtures, \$65.00; 50 8-frame Wisconsin hives without frames, \$75.00.

W. C. Davenport, 2111 Noyes St., Evanston, Ills.

FOR SALE.—Pan Handle beekeepers, please note that you can buy Root bee-supplies "next door." Will C. Griffith & Sons, Elm Grove, W. Va.

FOR SALE.—If you wish to know where to save money on bee supplies send for our new price list. It may be worth your trying.

H. S. Duby & Son, St. Anne, Ills.

FOR SALE.—3 No. 15 Cowan reversible extractors, each \$15.00; 2 boiler wax presses, each \$10.00; 1 30-gal. tank, \$5.00. All good as new. Also 50 new shipping cases and 2,000 sections.

Edw. A. Winkler, Joliet, Ills., R. D. No. 1.

FOR SALE.—30 supers full foundation; 15 supers drawn combs; 20 supers empty frames; 15 hive bodies with frames; 8 hive bodies, drawn combs. Whole lot for \$160.00, or sell in small quantities. No disease. A. I. Root Co. goods.

H. D. Hopkins, Otterville, Mo.

FOR SALE.—To reduce stock the following will be quoted at prices attractive, even to those at a distance. 8-frame standard hives; metal covers; K covers; A bottoms; P supers; sections; holders; cartons, shipping cases; Danz. hives; supers; frames; B-grade sections; Alexander feeders; Bing-ham smokers; foundation for split sections; D cases; a stock of 4x5 1/2 sections (regular for 8-frame super), with cartons and shipping cases— all will be sold at great sacrifice.

Mason Bee Supply Co., Mechanic Falls, Me.

FOR SALE.—Only about 100 dovetailed and 100 homed-made hives with about that many supers of each kind left, as per our advertisement in Nov. and Dec. numbers of Gleanings. We offer 30 10-frame dovetailed standard hives, Hoffman frames, new, nailed and painted, \$2.00 each; new nucleus and cages nailed ready for use, 20 3-frame, 25c each; 57 2-frame, 20c each; 28 2-pound cages, 35c each; 148 2-pound cages, 25c each; 150 1-pound cages, 20c each.

The Hyde Bee Co., Floresville, Texas.

AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the **AUTOMOBILE DEALER AND REPAIRER**; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline-engine repairs. \$1 per year. 15 cents per copy. Canadian subscriptions, \$1.50. Postals not answered. Charles D. Sherman, 107 Highland Court, Hartford, Conn.

POULTRY

S. C. Brown Leghorns, good baby chicks, \$15.00 per 100; \$7.75 per 50; \$4.00 per 25. Order from this advertisement. Safe arrival guaranteed. Circular free.

H. M. Moyer, Boyertown, Pa., R. F. D. No. 3.

WANTS AND EXCHANGE

WANTED.—Several hundred colonies in good location, in any state. F. R. Roe, Palisade, Colo.

WANTED.—To buy small yard of bees near La Junta, Colo.

W. I. Reed, 1709 Belmont Ave., Pueblo, Colo.

FOR EXCHANGE.—A Ford car of late model, for bees or good bee supplies.

H. E. Graham, Gause, Texas.

WANTED.—Used hives and supers, foundation mills, extractors, bees, and bee equipment. State lowest cash price wanted.

W. A. Latshaw Co., Carlisle, Ind.

WANTED.—To buy or lease 500 to 1,000 colonies of bees. Any location.

Russell T. Stinnett, Hillsboro, Ore.

WANTED.—Colonies of bees in lots of anywhere from 5 to 500. State lowest cash price wanted.

H. G. Quirin, Bellevue, Ohio.

WANTED.—To rent, 10-inch mill, for a few days, within 200 miles of Evansville, Ind.

John F. Hepp, Boonville, Ind.

FOR TRADE.—360 acres in Washington County, Arkansas, for large apiary. Frank Van Haltern, Box 248, K. S. A. C., Manhattan, Kans.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax.

Superior Honey Co., Ogden, Utah.

WANTED.—250 colonies, or less, of bees. Name lowest cash price, style of hive, etc.

A. W. Smith, Birmingham, Mich.

WANTED.—To exchange California property for bees. Miss Alice Elflein, Menomonee Falls, R. D. No. 2, Box No. 109, Wis.

WANTED.—150 to 200 colonies of bees to work on shares. Extracting outfit.

M. Knudsen, 320 Second St., Albert Lea, Minn.

WANTED.—Good second-hand power extractor. Will pay cash or exchange comb-honey supers. Also have 60,000 folding cartons for sale at 1-3 price.

H. G. Quirin, Bellevue, Ohio.

WANTED.—To exchange paying jewelry and optical business, about \$1,000, for bees, or will trade income property in Alpena, Mich., for bees, or bees and land. H. Aldred, Gladstone, Mich.

WANTED.—100 to 150 packages of bees with queens, delivered to Toronto, Ont., by parcel post by May 24. Address particulars to Dr. C. J. Dennis, c/o St. Michael's Hospital, Toronto, Ont.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 38c cash, 40c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival.

The A. I. Root Co., Medina, Ohio.

WANTED.—To buy, from 50 to 200 colonies of bees in Oklahoma. Or would buy small place in the West, that is good location for apiary, with or without bees. Give full particulars in first letter. Distance from railroad no objection.

Eugene Couch, Choctaw, Okla.

WANTED.—An apiary, by two brothers, single, abstainers, well educated and of many years' experience with bees; also poultry and orchard work, either to rent or work on shares. Would consider buying and paying \$500 cash down, the rest on time. Address

F. L., 1612 Larimer St., Denver, Colo.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slungum. Send for our terms and our new 1919 catalog. We will buy your share of the wax for cash or will work it into foundation for you.

Dadant & Sons, Hamilton, Illinois.

REAL ESTATE

FOR SALE.—80 colonies of bees in good condition. Two comb supers to hive. 55 hives full of extracting combs. All supplies needed to run this year. Supply trade of country. House of eight rooms in good condition; out-buildings and fruit, fine well of water. O. Holdren, Darlington, Mo.

FOR SALE.—One yard of bees, 100 hives or more, 10-frame hives, Hoffman frames, everything in excellent condition, with or without equipment and location. No disease. Apply
Cozy Nook Apiaries, Blackfoot, Ida.

FOR SALE.—On account of failing health, I wish to sell my farm and apiary. Farm 80 acres, 40 cleared, balance very easily cleared. Town 4½ miles, school 1 mile; on telephone line and rural route. Large new frame residence, shop, small frame barn, chicken house, well of soft water in engine room. Good fences. Apiary, 125 colonies bees in 10-frame L. hives, very heavy with honey; all strong colonies. Good supply of full-depth extracting supers. Frames nearly all wired. This is a No. 1 location for an apiarist. My bees averaged \$25 per colony last year. Terms, \$3,500 cash, balance on long time. A bargain.

S. D. Clark, R. D. No. 1, Weyerhauser, Wis.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens.

W. G. Lauver, Middletown, Pa., R. D. No. 3.

FOR SALE.—Three-band Italian queens.

W. T. Perdue, R. D. No. 1, Ft. Deposit, Ala.

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 84 Courtland St., New York.

FOR SALE.—1919 Golden Italian queens, price list free. Write, E. E. Lawrence, Doniphan, Mo.

Queens on approval. Bees by package or colony. A. M. Applegate, Reynoldsville, Pa.

Golden Italian queens, untested \$1.00 each, six for \$5.00. E. A. Simmons, Greenville, Ala.

Who wants a few hundred colonies of bees about June 1, 1919?

J. Wilson Jones, Falfurrias, Tex.

FOR SALE.—Bees by the pound for early shipment. Safe delivery guaranteed.

H. E. Graham, Gause, Texas.

"She suits me" Italian queens, \$1.15 each from May 15th to Oct. 15th; 10 or more, \$1.00 each. Allen Latham, Norwichtown, Conn.

FOR SALE.—180 colonies of bees in good sweet-clover location; power extractor and complete equipment. Thos. Atkinson, Cazad, Neb.

FOR SALE.—800 swarms of bees in wired Hoffman frames, or help wanted to take care of them on shares. G. Frank Pease, Houghton, La.

THREE-BAND Italians only. Untested queens, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00. H. G. Dunn, The Willows, San Jose, Calif.

FOR SALE.—150 colonies Italian bees in Root 8-frame hives. All in good shape. C. D. Pritchard, Artesia, Miss.

Leather-colored Italian queens, tested, to June 1st, \$2.00, after, \$1.50; untested \$1.00, \$10.00 per dozen.

A. W. Yates, 15 Chapman St., Hartford, Conn.

FOR SALE.—Italian queens and bees by the pound. Early shipments. Guaranteed safe arrival and no disease.

Brazos Valley Apiaries, Gause, Tex.

GOLDENS THAT ARE TRUE TO NAME. Untested queens, each, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00.

Golden City Apiaries, San Jose, Calif.

FOR SALE.—Bright Italian queens at \$1.00 each, \$10.00 per doz. Ready April 10. Safe arrival guaranteed.

T. J. Talley, R. D. No. 4, Greenville, Ala.

FOR SALE.—300 colonies of bees in 10-frame well-painted hives, wired foundation, equipped for comb or extracted honey, 1918 queens.

C. J. Freeman, Bagnall, Mich.

FOR SALE.—Three-band Italian queens ready June 1. Untested, each, \$1.00; 12, \$10.00; 100, \$80.00. Satisfaction and safe arrival guaranteed.

A. E. Crandall & Son, Berlin, Conn.

BEEES FOR SALE.—Pure Italians of Dr. C. C. Miller's strain in standard ten-frame Langstroth hives. Write for price and particulars.

D. E. McDonald, Rutland, B. C., Can.

FOR SALE.—Italian bees in 8- and 10-frame hives. Hoffman and Danz. frames wired, full sheets of foundation; also 1-, 2-, and 3-fr. nuclei. Henry Shaffer, 2860 Harrison Ave., Cincinnati, O.

FOR SALE.—Golden Italian queens which produce gentle yellow bees, the hardest workers we have known. Untested, \$1.00, tested, \$1.50. Wildflower Apiaries Co., Trust Bldg., Little Rock, Ark.

Three-banded Italian queens and bees by the pound, also nucleus, in Root's shipping-cases, if preferred, or buyer furnish own cases. Send for price list. J. A. Jones & Son, Montgomery, Ala., R. D. No. 1, Box 11a.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey gatherers as can be found; May and June, untested, each, \$2.00; six, \$7.50; tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnetts, Va.

I will commence shipping bees on April 15th. Send your order early, and arrange for date of shipment. All orders will be shipped on date promised. Bees: 1 lb., \$2.25; 2 lbs., \$3.50; Untested queens, \$1.00 each. Discount in quantities.

J. S. Morales, 1103 Egmont St., Brunswick, Ga.

We will be obliged to charge \$1.00 each for virgin queens and \$2.00 for mated, as all queens reared last year were sold at a positive loss, as compared with honey, and we prefer to sell fewer and maintain their quality. C. W. Phelps & Son, 3 Wilcox St., Binghamton, N. Y.

Queens from one of Dr. Miller's breeders. Tested, \$1.75 each; \$18.00 per doz.; untested \$1.25 each; \$13.00 per doz. 1-frame nucleus, \$3.00 each; 2-frame, \$5.00 each; 3-frame, \$6.50 each, without queens. We have never had any disease here. Safe arrival and satisfaction guaranteed. We have no package fees to offer and no untested queens except with nuclei. Delivery April 15. Geo. A. Hummer & Sons, Prairie Point, Miss.

QUEENS; BEES BY THE POUND.—Three-banded and Golden. They are hustlers, gentle to handle, cap their honey white, are very resistant to European foul brood. Booking orders now. One-fourth down, balance at shipping time. See large ad for January for prices on bees by the pound. Quote nuclei f. o. b. here, 2-frame nuclei, \$4.50; 3-frame nuclei, \$6.00; 1-frame nuclei with one pound extra bees, \$4.50; 1-frame nuclei with two pounds extra bees, \$6.00; 2-frame nuclei with one pound extra bees, \$6.00. No discount on nuclei. Select untested queens, \$1.50 each; 25 or more, \$1.35 each; tested queens, \$2.50; select tested, \$3.00. Free circular giving details. Neuces County Apiaries, E. B. Ault, Prop., Calallen, Tex.

HELP WANTED

WANTED.—Beeman to work 200 hives of bees, comb honey. R. S. Becktell, Rifle, Colo.

WANTED.—Young man to work with bees and help on farm. State wages expected in first letter. E. G. Shearing, Buhl, Ida.

WANTED.—Young man as helper, also one experienced in the extracted line. State age, experience, and wages expected.

Chas. Adams, 1816 8th Ave., Greeley, Colo.

WANTED.—One or more men as queen breeders. State wages and give references in first letter.
M. C. Berry & Co., Haynesville, Ala.

WANTED.—Queen-breeder for coming season. State experience and wages expected.
L. L. Forehand, Ft. Deposit, Ala.

WANTED.—Two men with some experience to help with bees the coming season.
B. B. Cogshall, Groton, N. Y.

WANTED.—Good experienced man; also some good helpers. Good chance for willing workers.
Penn Co., Penn, Miss.

WANTED.—Two young men with good habits, to work with bees and on farm. 1,200 colonies. Give age, experience, and wages.
N. L. Stevens, Venice Center, N. Y.

WANTED.—Experienced beeman for season of 1919. Middle west preferred. State wages and experience first letter.
Wm. Lindenmeier, Jr., Ft. Collins, Colo.

WANTED.—Good capable, experienced man to help handle 300 colonies of bees. Give age and wages wanted in first letter.
J. W. Hackney, Weldona, Colo.

WANTED.—Two capable young men, clean in body and mind, as students in beekeeping for the season of 1919. For particulars address
R. F. Holtermann, Brantford, Ont., Can.

WANTED.—Experienced beeman and one helper. Fast workers and able to do heavy work. Prefer young men experienced in handling auto trucks. State all particulars in answering and wages wanted.
Ernest W. Fox, Fruitdale, S. D.

WANTED.—About March 1, a man of good habits, who is interested in production of extracted honey, to assist in care of bees in outyards. Good board and lodging furnished. State age, weight, past experience, and salary expected.
A. L. Cogshall, Groton, N. Y.

WANTED.—We want to engage a young man or young woman, thoroly experienced in bee culture, to start and manage an apiary, and assist in poultry department meanwhile. Will want to begin with about 50 to 100 colonies this season.
Forrest Ferguson Farms, Dyersburg, Tenn.

WANTED.—One experienced man, and students as helpers in our large bee business. Good chance to learn. Modern equipment and outfit, including auto truck, located near summer resorts. Write, giving age, height, weight, experience, reference, and wages wanted.
W. A. Latshaw Co., Clarion, Mich.

WANTED.—Experienced apiarist wants position. Thrifty-three, doesn't use liquor or tobacco; no trifler or quitter, steady and reliable, will work on salary or on share basis; could invest \$300. State best offer in first letter. Location, not particular. Pro-Germans or Catholic save your stamps.
E. W. F., P. O. Box No. 184, Marshall, Minn.

HELP WANTED.—Will give experience and fair wages to active young man not afraid of work, for help in large, well-equipped set of apiaries for season starting in April. State present occupation, weight, height, age, and beekeeping experience, if any. Morley Pettit, The Pettit Apiaries, Georgetown, Ont.

WANTED.—Men of energy, character, and clean habits, as helpers in our ten apiaries, over 1,000 colonies, crop in 1918 over 100,000 pounds. Best chance to learn. Write immediately, giving age, height, weight, experience, references, and wages, all in first letter. Need one experienced man and students.
E. F. Atwater, Meridian, Idaho.

Have 210 colonies of bees near Copemish, Mich., either for sale or to be worked on shares. Would prefer to have reliable man work them on shares. Good location, good equipment, splendid opportunity for the right man. If interested write or call at once.
M. J. Deyell, Medina, Ohio.

SITUATIONS WANTED

WANTED.—Position by a professional, to work in apiary as an assistant queen-breeder, on any work in large apiary. Southern states preferred. Address J. Richards, Queen-breeder, Syracuse, N. Y.

WANTED.—Position wanted by experienced bee man, preferably in California. Wages expected \$125 a month and board. Work guaranteed. No bad habits.
S. M. Campbell, Calexico, Calif.

WANTED.—Anzac soldier with three years' active service wants position for the coming season on up-to-date bee-yard. Thoro knowledge of bee-keeping in America and Australia. Total abstainer. State wages and conditions. Age 28. W. A. Collins, 7th Batt. Australians, c/o James Miller, Esq., Bucyrus, Ohio.

MISCELLANEOUS.

Did you notice the large *Domestic Beekeeper* Advertisement on page 194 where they are offering a full year's subscription for only 50c, just half-price? You had better investigate.

FOR SALE.—10x15 O. S. Gordon press, foot or power. Want a smaller press and outfit.
The Liberty Press, Box 224, Shenandoah, Iowa.

PRINTING.—Send your copy for estimate. Work guaranteed. Circulars, Bill Heads, Letter Heads, etc. The Hawthorne Press, R. W. Hopkins, Mgr., Yonkers, N. Y.

If you pay catalog price for your bee supplies and buy \$5 worth each year, it will pay you to be a subscriber to the *Domestic Beekeeper* and allow us to buy your supplies for you, on our non-profit plan.

HATCHING EGGS.—Plymouth Rocks, all varieties; Anconas and Rouen chicks. Illustrated catalog, 3 cents. Sheridan Poultry Yards, R. D. No. 12, Sheridan, Mich.

One party sent us the same money he had been paying for his supplies. With our large experience in buying (made possible by the advertising facilities of the *Domestic Beekeeper*), we were able to buy his bill of goods to so good advantage that we returned him \$30 of his money. Does anyone think this party, after knowing our system of buying for our subscribers, would think of buying thru the regular agent's channel. Guess not! He would be foolish to do so. Our buying facilities are open to all our subscribers alike. Do not fail to investigate at this time. See page 194.

"Special Crops" A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. \$1.00 per year. Sample copy 10c. Address
Special Crops, Box G, Skaneateles, New York



64 BREEDS Most Profitable chickens, ducks, geese and turkeys. Choice, pure-bred, hardy northern raised. Fowls, eggs, incubators at low prices. America's greatest poultry farm. 26 years in business. Valuable new 112 page Poultry Guide and Catalog free. Write today.
R. F. NEUBERT Co., Box 837 Mankato, Minn.

Don't Send a Penny

These Len-Mort Work and Outdoor Shoes are such wonderful value that we gladly send them, **no money down**. You will find them so well made and so stylish and such a big money-saving bargain that you will surely keep them. So don't hesitate—just fill out and mail the coupon and we will send a pair of your size. No need for you to pay higher prices when you can buy direct from us—and know what you are getting before you pay even a penny. Why pay out \$5.00 and \$6.00 for shoes not near so good? Act now. Mail the coupon today while this special offer holds good.

Great Shoe Offer

We can't tell you enough about these shoes here. This shoe is built to meet the demand of an outdoor city workers' shoe as well as for the modern farmer. Send and see for yourself what they are. Built on stylish lace Blucher last. The special tanning process makes the leather proof against the acids in milk, manure, soil, gasoline, etc. They outwear 3 ordinary pairs of shoes. Your choice of wide, medium or narrow. Very flexible, soft and easy on the feet. Made by a special process which leaves all of the "life" in the leather and gives it wonderful wear-resisting quality. Double leather soles and heels. Dirt and waterproof tongue. Heavy chrome leather tops. Just slip them on and see if they are not the most comfortable, easiest, most wonderful shoes you ever wore.

Pay **\$3.85** for shoes on arrival, only. If after careful examination you don't find them all you expect, send them back and we will return your money. No obligation on you at all. This is at our risk. Order by No. X15012.



*Only
one pair
to a customer
at this low price*

Leonard-Morton & Co.
Dept. X1381 Chicago

Send the Len-Mort Shoes No. X15012. I will pay \$3.85 for shoes on arrival, and examine them carefully. If I am not satisfied, will send them back and you will refund my money.

Send

Only the coupon—no money. That brings these splendid shoes at once. You are to be the judge of quality, style and value. Keep them only if satisfactory in every way. Be sure to give size and width. Mail the coupon now. Order by No. X15012.

Leonard-Morton & Co.
Dept. X1381 Chicago

Size.....Width.....

Name.....

Age.....Married or Single.....

Address.....

Michigan Honey

IS rated high. Its quality is such that Michigan white-clover honey is the standard of excellence the country over. That is one side of the story. ¶ Consider the other side of it. There are hundreds of square miles of good bee territory in Michigan practically untouched. Hundreds of tons of nectar go to waste annually for want of harvesting. ¶ Mr. Business Beekeeper, it was W. Z. Hutchinson who said that the best business to go with bees was "more bees." Why not expand this year? Start an out-yard or another one. Expand this year and be a bigger business beekeeper than you were last year. ¶ Mr. Beginner, you are what big business beekeepers are made of. Maybe you will find a congenial life work with the bees. Why not investigate now? We have a folder concerning a beginner's outfit for you. ¶ Producing Michigan honey with Root's goods spells success. Whether you are a beginner or a big business beekeeper, we have the equipment you want.

*Our 1919
Root Catalog is Ready for
Mailing*

M. H. Hunt & Son

General Agents in Michigan for Root's Goods

Lansing, Mich.

The Best from Others.—Continued from Page 171.

water was obtained from two to twelve months after the death of the colonies, and Mr. Tinsley concludes that the disease organisms probably have little vitality outside of the bee's body, and are probably killed by exposure to the air. Honey from diseased stocks produced no effect when fed to healthy colonies. Other experiments were also tried, but with inconclusive results.

Prevention and Cure.—Mr. Tinsley, however, believes the experiments at this research apiary proved the disease to be highly contagious, and he believes that beekeepers should disinfect hives and appliances in any way connected with the disease. He advises a thoro scraping of the hives, washing with a strong solution of formalin, of fumigating with formalin candle, disinfecting the ground near the hive with chloride of lime, destroying combs of brood, and disinfecting frames and empty combs.

Izal, bacterol, dioxygen, phenol, quinine, formalin, sulphur, miltol, flavine, and aperients were all tried on colonies already affected, but none effected a cure. The best results were obtained with a pure culture of *Bacillus Bulgaricus*—an organism that acts as a scavenger of the intestines, and displaces putrefactive and injurious organisms. This culture was mixed with syrup and fed to healthy colonies by spraying. When applied, about one-third of the population was

(Continued on page 193.)

\$30.000 WORTH OF Bee Supplies



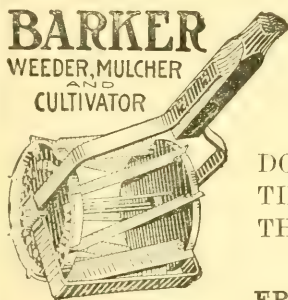
All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

Will Take Beeswax in Trade at Highest Market Price.

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

BARKER
WEEDER, MULCHER
AND
CULTIVATOR



Weeds and Mulches In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.*

A boy can use it. Five sizes. Send today for book, free and postpaid.

**BARKER
MFG. CO.
Dept. 10**

DAVID CITY, NEB.

Gentlemen.—Send me postpaid your free book and Factory-to-User Offer.

BARKER MANUFACTURING CO.

Dept. 10

David City, Nebraska

Name _____

State _____

Town _____

R. R. No. _____ Box _____

QUEENS THAT WILL PLEASE QUEENS THAT ARE BRED FOR BUSINESS

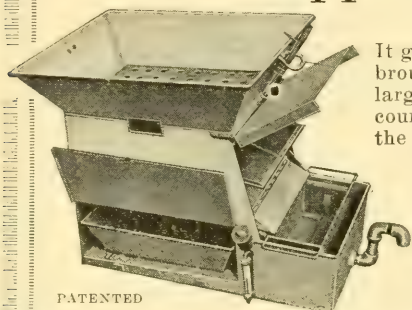
They are hardy, long-lived, gentle, and disease-resisting. They are as good as any and far superior to most—bred from imported stock, which produces a bee that is the best in the world for honey-gathering, and are non-swarmers. They are now giving service in nearly every country in the world. Have your order booked now. All that we require is one-fourth cash and balance at shipping time. We guarantee every queen to reach you in first-class condition, to be purely mated, and to give perfect satisfaction, in the U. S. and Canada.

Prices—April 15 to July 1

Untested		1	6	12	Untested		1	6	12
Selected	Untested...	\$1.25	\$6.50	\$11.50	Tested		2.50	13.00	24.50
		1.50	7.50	13.25	Selected	Tested....	4.00	22.00	41.00

L. L. FOREHAND :- FORT DEPOSIT, ALABAMA

THE GREAT YEAR OF 1919 IS HERE, AND SO IS THE Severin Capping Melter & Separator (COMBINED)



It got a fine start in 1918 from advertisements which brought inquiries and orders from producers in all large honey-producing sections, in this, and other countries. Get the best—it pays in the end, just as the best Extractor does. Saves time, labor, and fuel.

Seeing the great need and demand for these melters, I am better prepared to fill orders than in 1918; but, owing to the great need of copper by the Government, I am limited on supply material, as I use only the best. Handled right, this melter will do the work where others fail.

F. J. Severin :- Imperial, Calif.

"falcon"

Your Duty—Do You Know It?

It is to get ready for the coming season and be ready for the first honey flow. This will net you profits. Prepare your bees for a big year and take no chances. Get the best to do with and have the best results.

Our Duty—Do We Know It?

We get the beekeepers ready for the big season. Supply them with the best of everything with which to work and get the best results. Send us a list of your requirements for quotation. TO DELAY MEANS LOSS TO YOU. "Falcon" service cannot be beat. Catalog and Simplified Beekeeping on request.

W. T. Falconer Manufacturing Company
Falconer, New York

"where the best bee hives come from"

"falcon"

The Best from Others.—Continued from Page 191.

diseased but after two weeks' treatment the disease disappeared. This culture affected the expulsion of the fecal accumulations, and also their nature, causing them to be less solid, and to be light gray in color rather than yellow or brown. This colony thrived during the autumn and winter, and remained alive until early the next spring. While the author does not consider this to be an absolute cure, he believes it will repress and hold the disease in check; and by somewhat varying this treatment it might, perhaps, prove a cure.

Immune Strains.—The real remedy, however, he says, lies in producing an immune strain. Some colonies have been found that show considerable immunity. Such resistant strains have been collected and gradually built up into an apiary of considerable size at Kilmarnock. Some of the colonies bred especially for immunity were for a year placed in the heart of a diseased district, but remained free from the disease. In raising immune strains, foreign bees were used largely. Tho not disease-proof, they do not succumb as easily as native strains. Crossing with Dutch, Italian, American, and Punies, increased the vigor and resistance. The best results were obtained from foreign bees, especially small-sized ones, from low wet districts lacking in sunshine. This work of producing immune strains is being continued in the hopes of combating the disease by restocking disease-swept districts.

BEES We furnish full colonies of bees in chaff or single-walled hives, nucleus colonies or bees by the pound in season. Prices on application. Ten-oz. screw-capped jars, two gross crates at \$7.50 a gross.

I.J. STRINGHAM, GLEN COVE, N. Y.

WING'S VEGETABLE SEEDS

Stand for big yields. We offer the best that can be grown and can supply you with all standard varieties. Readers of this paper need no introduction to Wing's Alfalfa seed, Corn, or other field seeds. Some of you do not know that our vegetable seeds are as good as our field seeds. Some of you, however, are finding out just how good they are, and as a result our vegetable department has been either doubling, tripling or quadrupling for years.

As an indication of the quality of our seeds, we call your attention to the special premiums won at the Ohio State Fair for two successive years on vegetables grown from our seeds. Part of these premiums are as follows:

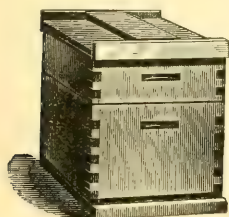
General display of vegetables, **First Premium** two successive years.

BEETS—Four **Firsts**, out of five classes in 1918. **CABBAGE**—Three **Firsts**, five **Seconds** and four **Third Premiums** for 1917 and 1918. **CARROTS**—1917, two **Seconds** and one **Third**; 1918, two **Firsts** and **First** on display of all varieties. **ONION**—1918, six **Firsts** and three **Seconds** on single varieties. **First** on display of ten varieties. **TOMATOES**—1915, general display, **First Premium**; 1916, did not show; 1917, ten **First Premiums**, two **Seconds** and two **Thirds**; 1918, **First** on display. These exhibitors certainly won on quality, and we have more seed just like they used.

Write for Free Catalog

It offers all the standard vegetables as well as many novelties which you are unlikely to find elsewhere; also, all the standard flower seeds, plants and bulbs especially Gladioli, Iris, Peonies and Dahlias as well as field seeds.

Wing Seed Co., Box 137, Mechanicsburg, Ohio
(The House of Quality and Moderate Prices)



Early-order Discounts will Pay you to Buy Bee Supplies Now

32 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality.

Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri

**BANKING
BY MAIL
AT 4%**

WHEREVER you live you can open a Savings Account by mail with this strong bank. . . . Hundreds of people in all parts of the world are availing themselves of the safety and convenience we afford.

Send today for our free booklet "Banking by Mail."

THE SAVINGS DEPOSIT BANK CO.
A.T. SPITZER, Pres.
E.R. ROOT, Vice Pres. E.B. SPITZER, Cash.
MEDINA, OHIO

SOUTHERN HEADQUARTERS

ITALIAN BEES AND QUEENS

1 lb. bees, no queen..... \$2.25
2 lbs. bees, no queen..... 4.00

For 50 or more, 20c less on each swarm. These go express charges collect, at buyer's risk. If wanted by Parcel Post add 50c for 1 lb. and 75c for 2 lbs., for guaranteed safe arrival at your postoffice. Shipper reserves right

to demand return of empty cages at his expense.

1 Untested Italian queen..... \$1.25
12 Untested Italian queens..... 13.25
50 or more, each..... 1.00
Tested queen 2.00

No disease has even been in my vicinity.

W. D. ACHORD

-:- -:-

FITZPATRICK, ALABAMA

THE DOMESTIC BEEKEEPER

BARGAIN WEEK

HUTCHINSON once told the writer than it cost him two dollars to secure a new subscriber for the *Rever*, the name now being changed to the *Domestic Beekeeper*. This meant that he paid out large sums for advertising, circulars, postage, and clerical help, all of which cost him good money. The thought occurred to Townsend, the present owner of the *Domestic Beekeeper*, why not give this extra money to the subscriber, instead of paying it out as mentioned above, and we have decided to do this very thing. Listen: the week beginning Monday, March 10th and ending March 15th, will be bargain week for new subscribers to the *Domestic Beekeeper*. During this week and

THIS WEEK ONLY

after which the price will go back to the original price of a dollar a year, we will accept 50c for a full year's subscription to the *Domestic Beekeeper*. A post office money order for 50c will cost but 3c, or a check will do, and be sure your order bears one of the following dates: March 10th, 11th, 12th, 13th, 14th, or 15th; six days only, other dates the regular dollar-a-year price will be strictly adhered to.

It is customary for business houses to have bargain days, at which time they secure new customers, and why not a bee journal have bargain days to secure new subscribers? Remember this is the first bargain days ever offered by a bee journal, and may be the last, so we would suggest that all you producers who have been thinking of subscribing for the *Domestic Beekeeper*, take advantage of those liberal terms and get a full year's trial subscription to the *Domestic Beekeeper* at half-price. Remember that a postal order for fifty cents will pay your subscription to the *Domestic Beekeeper* a full year, providing you order it March 10th, 11th, 12th, 13th, 14th, or 15th. No other dates will do, for immediately following this bargain week, the price of the *Domestic Beekeeper* will be a full dollar a year, the regular price.

The *Domestic Beekeeper* has a department that sells subscribers' honey for much more money than the large buyers will pay. This department is free to all paid-in-advance subscribers. Then we buy beekeepers' supplies for our subscribers, at much below catalog price. A trial subscription will convince you that you cannot very well get along without the *Domestic Beekeeper*.

REMEMBER THE DATE, MARCH TENTH TO MARCH FIFTEENTH, INCLUSIVE, AND LET THE FIFTY CENTS COME ALONG TO

The Domestic Beekeeper, Northstar, Mich.

Our Food Page—Continued from page 159.

and let soak over night. In the morning put over the fire, bring to a boil, and remove from the fire and cool. Repeat this, bring to a boil the third time, and simmer until the fruit is tender, which will be in a short time as the previous soaking and cooking have softened it. Weigh, and for every pound of fruit pulp add $\frac{3}{4}$ pound of white honey. Return to the fire and cook until it will drip from the side of a spoon in two or more rows of drops, when it may be poured into sterilized glasses and sealed with melted paraffin. After the honey is added it must be carefully watched and stirred to prevent darkening. If light honey is used and the directions are carefully followed, the resulting marmalade will be light yellow in color, tender, and will keep its shape when turned out of the glass. Half sugar may be used with good results.

GRAPEFRUIT MARMALADE.

- | | |
|--------------|----------------|
| 1 grapefruit | 1 lemon |
| 1 orange | honey or sugar |
| | water |

Select fruit with a fine-grained, thin skin, if possible, and then proceed the same as when making the orange marmalade.

ORANGE SALAD.

- | | |
|---------|----------------|
| oranges | lettuce leaves |
| nuts | whipped cream |
| | salad dressing |

Separate the required number of oranges into sections and cut the sections in halves crosswise with a sharp knife. Arrange the half-sections on crisp lettuce leaves to simulate the petals of a flower with a spoonful of salad dressing in the center. Sweeten the salad dressing, either boiled or mayonnaise, with honey and add whipped cream to taste. Chopped nuts may be sprinkled on the centers of the flowers.

ORANGE CUP.

- | | |
|--------------------|--------------------------|
| 4 slices pineapple | 1 tablespoon lemon juice |
| 2 bananas | shredded cocoanut |
| 3 oranges | honey |

Cut the fruit into cubes, add the lemon juice, sweeten to taste with honey, arrange in sherbet glasses, and sprinkle shredded cocoanut over the top. By cutting the oranges in halves and carefully removing the pulp you may make cups to use instead of the sherbet glasses.

VICK'S

GARDEN and FLORAL GUIDE FOR 1919

ITS FREE Several New Features **WRITE TODAY**

Based on our experience as the oldest mail order seed concern and largest growers of Asters and other seeds in America. 550 acres and 12 greenhouses in best seed growing section. Our Guide is full of helpful information about planting, etc.—an invaluable aid to a successful garden. Illustrates and describes leading Vegetables, Flowers, Farm Seeds, Plants and Fruits. This book, the best we have issued, is yours, absolutely free.

Ask for your copy today before you forget.

JAMES VICK'S SONS
33 Stone Street, Rochester, N. Y.
The Flower City

W. H. LAWS'

New Prices on Italian QUEENS

Untested

Each, \$1.50; twelve for \$15.00

Tested

Each, \$2.00; twelve for \$18.00

Select Tested

Each, \$3.00; twelve for \$30.00

Breeding Queens

None better; each, \$5.00

Safe arrival; satisfaction; no disease.
Above prices in keeping with all
beekeepers' commodities.

W. H. LAWS

Beeville, Texas

Bee County

THE DEROY TAYLOR COMPANY

NEWARK, (Wayne Co.) NEW YORK

Have the Most Complete Stock of Bee Supplies and Honey-containers, also Honey Separators and Smokers East of Buffalo, N. Y.

Are located on the Main Railroads; are Extensive Commercial Beekeepers, and offer Lewis Beeware (made like furniture), and Dadant's Foundation because we have found it the best. Now is the time to prepare for those early swarms from the bees that are wintering so well. Send us that list and we will quote you very low prices, quality considered. We also invite you to begin to prepare to come to the State Meeting at our Home Apiary in August. Watch this space for announcements regarding this meeting.



Profitable Returns From Chickens and Rabbits

A Back Yard flock will add dollars to your income and the luxury of fresh eggs for your family. But you need the expert help of the Poultry Item as your safe guide. 75c a year; 2 years, \$1.00; 4 months trial, 25c.

Good Poultry and Rabbit Books

"Town Lot Poultry Keeping," just revised, 50c. With Item 1 yr., \$1. (Flexible binding, \$1.00.) "Rabbit Culture and Standard," best book on rabbits, 132 pages, illustrated, 50c. With Item, \$1.00. Cloth book, \$1.00. Don't miss 100-page February number. It tells how a subscriber got an extra \$100 from a small town lot. Many other valuable helps.

Where the Rooster Crows the Item Goes.

The Poultry Item Box 70 Sellersville, Pa.



Your comb honey will sell for just as much money, if stored in the $4\frac{1}{4} \times 1 \times \frac{1}{2}$ -beewax sections that we sell to our subscribers for only \$7.30 per thousand, as if you paid the regular price of \$10 per thousand. They are No. 1 stock. You had better investigate that special bargain-week offer, where we offer a full year's subscription to the *Domestic Beekeeper* for only 50c. See page 194 for our large advertisement explaining this wonderful offer.

Established 1885



It will pay you to get our catalog and order early.

Beekeepers' Supplies

The Kind You Want and The Kind That Bees Need.

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Bees-wax wanted for supplies or cash.

John Nebel & Son Supply Co.

High Hill, Montgomery Co., Mo.

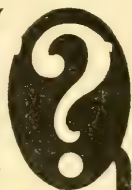
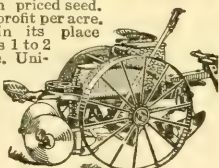
IRON AGE

Farm, Garden and Orchard Tools
Answer the farmers' big questions, How can I grow crops with less expense? How can I save in planting potatoes? How make high priced seed go farthest? The

IRON AGE Potato Planter solves the labor problem and makes the best use of high priced seed. Means \$5 to \$50 extra profit per acre. Every seed piece in its place and only one. Saves 1 to 2 bushels seed per acre. Uniform depth; even spacing. We make a full line of potato machinery. Send for booklet today.

No Misses
No Doubles

Bateman M'f'g Co., Box 20B, Grenloch, N.J.



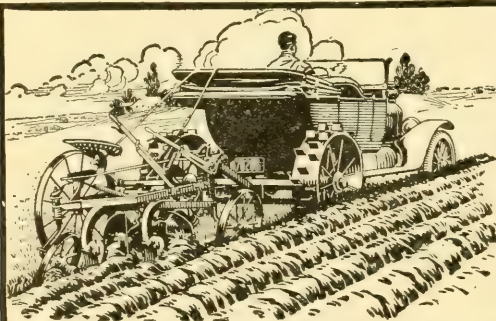
GOOD SEEDS

**GOOD AS CAN BE GROWN
Prices Below All Others**

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.
R. H. SHUMWAY, Rockford, Ill.



Plow and Pull

With Your **FORD** Or Most Other Cars
Pullford \$155 F. O. B. Quincy, Ill.

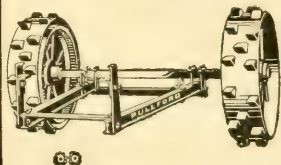
MAKES a practical tractor out of a Ford or most any other car. Easily attached to or removed from the car in thirty minutes. No holes to drill, no springs to remove. **Practical, Durable, Reliable.**

New FAN DEVICE Prevents Heating Hundreds WORKING NOW for Satisfied and Enthusiastic Owners

Pulls plows, harrows, drills, mowers, binders, hay loaders, road graders, wagons, trucks, etc. Steel wheels with roller bearings and tires 10 inches wide, two pairs of hardened Vanadium steel pinions, one for plowing and one for hauling speed. A tractor with the reliability and durability of the Ford car. Prompt shipment. Write for catalog.

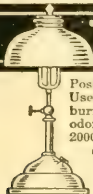
It was the Pullford attached to Ford cars pulling two 12-inch plows running on Kerosene, equipped with new fan device, that made a most successful demonstration at Fremont, Nebraska.

**PULLFORD COMPANY, Box 23C
Telephone No. 84 Walton Heights, QUINCY, ILLINOIS**



The Domestic Beekeeper sells hundreds of tons of honey annually for its subscribers thru its free honey-for sale department. This honey is sold for two or three dollars per hundred pounds more than the large honey-buyers would give for it. You who have honey for sale should investigate this privilege by sending in 50c for a year's subscription, as explained on page 194.

The BEST LIGHT



Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 10c to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

Order Bee Supplies EARLY

We can supply you with the best of everything. Dovetailed Hives, Supers, Frames, Honey Sections, and Comb Foundation. Be prepared for the coming season. Our catalog ready Jan. 10.

Send for it.

August Lotz Co., Boyd, Wis.

450,000 TREES

200 varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 3 sample blackberries mailed for 10c. Catalog free. LEWIS ROESCH, Box H Fredonia, N.Y.

SWEET CLOVER

Easy to start. Grows anywhere. Not only a good fertilizer, but produces immense crops. Big money-maker. Crops worth \$60 to \$125 per acre. Greatest forage plant that grows. You cannot miss it by sowing our superior scarified seed.

Don't delay writing for our 1919 catalog (116 pages) and circular giving full particulars. We can save you money on guaranteed seed.

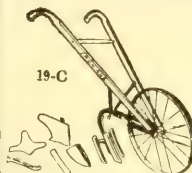
A. A. BERRY SEED CO., Box 966 CLARINDA, IOWA

IRON AGE

GARDEN TOOLS

Answer the "war gardener's" big question: How can I produce the most food in spare moments? How meet increased costs and war taxes?

IRON AGE Wheel Plow and Cultivator



Easy to push, fast, thorough, low in cost. Opens and covers furrow for seed and fertilizer. Cultivates wide or narrow rows. Turns soil and covers scratch foods in poultry yards. 30 other Iron Age Combinations. Send for free booklet today, and learn how to garden the modern, easy way.

Bateman M'f'g Co., Box 208 Greulich, N.J.

Discounts FOR Early Orders

Liberal Discounts Allowed on Immediate Cash Orders.

The Warm Winter Will Cause Abnormally Early Brood Rearing. Are You Prepared?

We Can Help You by Prompt Shipment from Our Large Stock

If You Haven't Our 1919 Catalog Write for It at Once.

Save Money on Discounts



The Kretchmer Manufacturing Co.

Dept. G Council Bluffs, Ia.

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. **THE BEST LIGHT CO.**

306 E. 5th St., Canton, O.

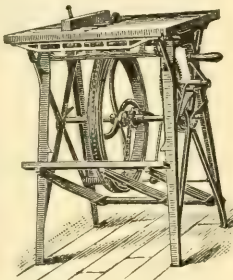
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
545 Ruby St
ROCKFORD, ILLINOIS



BEE-SUPPLIES

FALCON LINE

We carry the largest supply in our section. Send us your inquiries.

Lowest Prices, Quality Considered

C. C. Clemons Bee Supply Co.

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KANSAS CITY, MO

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182 Friend Street

Boston, Mass.

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(Lincoln's French Asparagus Bean)

THIRTY inches long. A remarkable vegetable that bears GIGANTIC stringless pods longer than a man's arm, and of delicious, rare, flavor. Not a novelty, but a Century old Oriental delicacy. Produces abundantly anywhere with 90 days growing weather. A valuable companion crop for Beekeepers. Free Bulletin describing this and other superfine seed strains if you mention "Gleanings."

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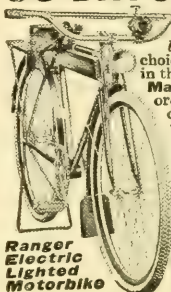
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MEAD Cycle Company
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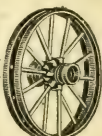
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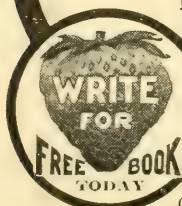
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MECHANIC FALLS, MAINE
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 Patent Counsel of The A. I. Root Co.
 Chas. J. Williamson, McLachlan Building,
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Complete Line of Beekeepers' Supplies

Catalog on Request

F. Coombs & Sons, Brattleboro, Vt.

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After April 1: Untested, \$1.25 each, 6 for \$7.00, or \$13.00 per dozen, or 50 for \$48; also 3-band untested at same price; tested, \$3.00 each, and my very best at \$5.00 each. Satisfaction.

R. O. Cox, Rt. 4, Greenville, Alabama

Distributors Root's Goods FOR PENNSYLVANIA

Send for new special catalog featuring the "Simplex" Super, and giving instructions to beginners

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White Blossoms; the greatest money-making crop of today. Big money for the farmers who grow it. Builds up land rapidly and produces heavy, money-making crops while doing it. Excellent pasture and hay; inoculates land for alfalfa. Easy to start; grows on all soils. Our seed all best scarified, hulled, high-germinating and tested. Quality guaranteed. Write today for our big, Profit-Sharing Seed Guide, circular, free samples. Address **American Mutual Seed Co., Dept. 951 Chicago, Illinois**

GIANT TOMATO-CUCUMBER-PEANUT-10c

Here Are Seeds of Three Valuable and Interesting Varieties You Should Grow In Your Garden This Year.

Giant Climbing Tomato—Is one of the largest grown. Vines grow very strong and will carry an enormous weight of fruit, very solid, crimson color; specimens often weighing 2 to 3 lbs. each.

Japanese Climbing Cucumber—Is a grand variety from Japan; can be trained to fences, trellises or poles and save space in your garden. Fruits early, growing 10 to 15 inches long, and are good for slicing or pickling.

Early Spanish Peanuts—Earliest variety and a great Peanut for the North; easy to grow, enormous yield, and a few hills in your garden will be very interesting to show your neighbors.

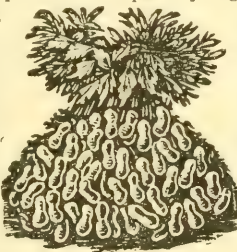
Special Offer: I will mail a regular sized Packet of Tomato, Cucumber and Peanut for only 10c, or 3 Packets of each for 25c.

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Giant Climbing Tomato



Early Spanish Peanuts



Climbing Cucumber

Italian Bees and Queens

WE will now book orders for our superior Italian bees and queens for spring delivery. There is absolutely no foul brood here and never has been; the closest we know of is over two hundred miles distant. You absolutely can't get it from buying bees from us. We do not know of anyone having perfect success shipping bees in packages, so are offering you as many bees as you wish to the package, shipped on a comb of brood which we guarantee to hatch out over a pound of bees. We guarantee safe arrival and satisfaction in every respect. This manner of shipping will eliminate loss in transit, as you know that your bees will arrive in the best of condition, that you will have no trouble in getting them from the packages to the hives, and that you can leave them knowing they will not swarm out. If the weather is bad on arrival, you won't have to nurse them as you will packages. You can safely figure on having as many colonies as you order packages. They will be gaining in numbers from the time they are packed until after your honey flow. If you want something sure, try them and be certain of your honey crop. If there was any chance of giving you foul brood we wouldn't offer them to you. The comb will be worth at least 45c to you. We guarantee our bees to be as good as can be had. We are not going to book more business than we can deliver promptly.

WE PRODUCED 12,348 QUEENS LAST YEAR

IF ANY OTHER QUEEN-BREEDER IN THE WORLD PRODUCED MORE THAN THAT AND WILL GIVE SATISFACTORY EVIDENCE THAT HE DID, WE WILL TAKE THIS OUT. Satisfactory service and SUPERIOR bees and queens did it. Quality and service did it. Next year we will tell you what we did this year. Comb of brood guaranteed to hatch more than a pound of bees, \$3.00. Additional bees at \$2.50 per pound. Any quantity you want. These packages cannot be sent by mail. Satisfactory goods or your money back and that right now.

PRICES OF QUEENS.

	Before June 15th			After June 15th		
	1	12	50 or more	1	12	50 or more
Untested	\$1.50	\$15.00	\$1.10	\$1.00	\$11.00	\$.90
Selected Untested..	2.00	20.00	1.50	1.50	15.00	1.30
Tested	3.00	33.00	2.50	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

Prices of Dr. Miller's Queens

	Before June 15th			After June 15th		
	1	12	50 or more	1	12	50 or more
Untested	\$1.80	\$18.00	\$1.25	\$1.25	\$13.25	\$1.10
Tested	3.00	33.00	2.50	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

We have a full line of Root's Goods and guarantee to fill all orders within three days after receipt and all mail orders the same day received. Try us on sections, foundation, smokers and all small orders by mail.

A full line manufactured from Cypress, the Wood Eternal, which we guarantee to please you. Solid one-piece covers made from the best wood in the world, without a crack or a crevice, at the price of other wood covers. Beeswax wanted. Send for catalog.

The Penn Company, Penn, Miss.

What is Sweeter than Honey?



A. I. ROOT

The Man behind the Root Line

Fifty Years of Service to Beekeepers

1869 --- 1919

FOR fifty years A. I. Root has manufactured and sold beekeepers' supplies and appliances. The goods turned out by the house of Root are as good as the man behind them. The service rendered by the house of Root is as unfailing and untiring as have been the efforts of this man in establishing the bee and honey business thruout our land upon a solid and substantial basis.

The Root aim has always been to serve each beekeeper in as many ways as possible, whether it be to ---

- Make and sell the best supplies,
- Publish the best bee literature,
- Market his wax and honey at the highest prices,
- Print his labels, cartons and stationery,
- Provide him with best and most authoritative information.

The A. I. Root Company has always endeavored to serve the beekeepers' interests in the best possible manner, and to give a square deal to all.

THIS IS STILL OUR POLICY.

THE A. I. ROOT COMPANY, MEDINA, OHIO

New York Chicago Philadelphia Syracuse San Francisco Los Angeles
St. Paul Indianapolis Norfolk

Anticipate Your 1919 Bee Requirements Now

Help Us Co-operate with the Gov-
ernment by Ordering Your Bee-
Supplies for Next Season Now. . .

Transportation conditions may not permit of prompt shipment later on---Now, of all times, the beekeeper "SHOULD NOT PUT OFF UNTIL TOMORROW WHAT HE CAN DO TO-DAY." You owe it to your country and to yourself to prepare at once for the gathering of the 1919 crop.

Have You Enough Hives?
Have You Enough Supers?
Have You Enough Frames?
Have You Enough Sections?

And have you enough of the rest of the things you will need?

The Lewis Factory is now operating night and day to take care of the season's demands. . . .
Help us while we are helping you---Place your orders now, so manufacturers and dealers can help their country, your country, you, and themselves by preparing now for your needs.

The New Lewis Catalog will be out This Month

G. B. Lewis Co. . . . Mfrs. Beeware
Watertown, Wisconsin

Gleanings in Bee Culture

Vol. XLVII

APRIL 1919

No. 4



Northern Michigan Woods—Future Raspberry Bee Pasturage

We are always in the market for HONEY and BEESWAX.
Do not sell until you have seen us.
We will pay you spot cash for anything you sell us.
Get our prices on cans and cases.

Los Angeles Honey Co.

633 Central Bldg., Sixth and Main Sts.
Los Angeles, California
Telephones: Home 10419; Main 5606

New York State Beekeepers' Society

MAKE OUR HOME APIARY (THE HONEYBEE) THEIR HEADQUARTERS, AUGUST FIRST, 1919, BY HOLDING THEIR FIELD MEETING HERE. Do not forget the date, as there is being prepared an unusually interesting program that you will not wish to miss. There will be complete directions as to how to get here in the July issue.

THE DEROY TAYLOR CO., NEWARK, WAYNE CO., N. Y.

The Home of Better Apiculture

Our 1919 Catalog, also Beginners' Book, is free for the asking. If you have not one, send for same today. Remember Bees are Stronger than usual, which brings on early Swarming.

Beeswax Wanted

In big and small shipments to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1918. We are paying higher prices than ever for wax. . We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. . Big catalog free.

Carl F. Buck

The Comb-foundation Specialist

Augusta, Kansas

Established 1899

"Griggs Saves You Freight"

TOLEDO

Do you realize, Mr. Beeman, that the first of March has passed? June will soon be here with its usual hustle and bustle for Bee Supplies.

Why not send us your order now and get the goods wanted? Don't delay. A list of goods wanted, brings prices back by return mail.

BEESWAX

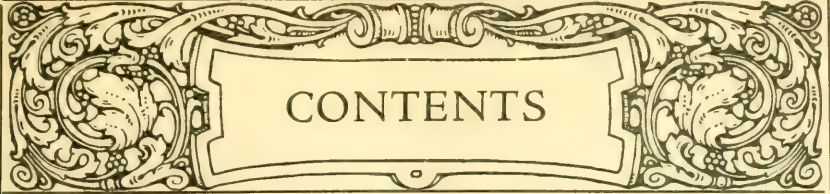
We use large quantities. Cash or in exchange for supplies.

Free catalog ready to mail.

S. J. GRIGGS & CO.,

Dept. No. 25 Toledo, Ohio

"Griggs Saves You Freight"



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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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Editor Home Dept.

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Assistant Editor

H. G. ROWE
Managing Editor

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Anticipating the wants of the trade and to meet the demands of our customers, we are now located at Pearl and Walnut Streets, carrying tremendous stocks—making this the largest Honey House in the country.

WHY YOU SHOULD BUY NOW! We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointment if you send your order for bee supplies to MUTH NOW.

MUTH'S ADVANTAGES! We sell at factory prices, **save** you freight and give you the finest bee supplies manufactured.

LEWIS BEEWARE DADANT'S FOUNDATION ROOT'S SMOKERS, EXTRACTORS, ETC.

Our new 1919 catalog sent for the mere asking. Drop us a card now! **OLD COMBS AND CAPPINGS.** Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

WANTED, COMB HONEY. Comb and Extracted Honey find ready sales here. Tell us what you have. We buy beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city come and see us.

THE FRED W. MUTH COMPANY

Pearl and Walnut Sts.

"The Busy Beemen"

Cincinnati, Ohio

*Bee Supplies**Bee Supplies*

Service and Quality

Order your supplies early so as to have everything ready for the honey flow, and save money by taking advantage of the early-order cash discount. Send for our catalog; better still, send us a list of your supplies and we will be pleased to quote you.

C. H. W. WEBER & CO.

2146 CENTRAL AVE.
CINCINNATI, OHIO

FREE FOUNDATION

We want the beekeepers to verify the results of our own tests among our 3,000 colonies of bees and the results obtained by other large beekeepers who have used our foundation extensively. Therefore, after May 1st, we will furnish our **"Superior Foundation"** free to all beekeepers applying for same for experimental purposes, they in turn to report to us the results of their tests.

DON'T TAKE OUR WORD that **"Superior" Foundation** is unexcelled in quality by any other make. Unsolicited testimonials

such as the following, from beekeepers that we have never met, speak for themselves:

Lazear, Colo., Feb. 10, 1919.
Superior Honey Co., Ogden, Utah.

Gentlemen:—Please find enclosed check for 127 pounds of Medium Brood Foundation. Your foundation has given as good success as any I have ever used. The bees take to it as soon as the foundation with greater claims. I have been unable to see any difference whatever. Am going to boost your foundation whenever I can.

Yours truly,
ROBT. G. CRAIG.

**LET YOUR OWN BEES
TEST OUR FOUNDATION**

SUPERIOR HONEY CO., OGDEN, UTAH
(MANUFACTURERS OF WOOD PROCESS FOUNDATION) **"BEST BY TEST"**

HONEY MARKETS

There is no decided change to report in the honey market since last month. There is little demand and prices continue to decline somewhat. The quotations printed below best tell the present market conditions:

U. S. Government Market Reports.

HONEY ARRIVALS SINCE LAST REPORT.

Medina, O.—30,000 pounds Ohio.

SHIPPING POINT INFORMATION.

San Francisco.—Supplies light but not cleaning up. Practically no demand or movement, very few sales, prices lower. Carloads f. o. b. usual terms. Extracted: per lb., sage white and water white 16-17c; light amber, 15-16c; dark amber 14c. Beeswax: per lb., 38-40c.

Los Angeles.—Remaining supplies very light. Demand improving on account of increased export demand. Carloads f. o. b. usual terms. Extracted: California light amber, sage, 17½-18½c per lb.; light amber alfalfa, 15½c per lb.; Idaho white alfalfa, no sales reported, asking 18c per lb.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the price at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding two weeks. Prices represent current quotations.)

Cincinnati.—No arrivals. No demand or movement, no sales reported. Beeswax: demand and movement moderate, market steady. Sales to jobbers: pure wax, dark to light, 40-44c per lb.

Kansas City.—Approximately 200 packages express arrived. Supplies moderate. Demand slow, movement draggy, no change in prices. Sales to jobbers: comb: 24-section flat crates, Colorado No. 1 light, \$7.50; Missouri, No. 1, light \$8.00-8.50. Extracted: Colorado, 60-lb. cans, 23-24c per lb. Beeswax: 40-44c per lb.

Chicago.—No carlot arrivals. Supplies moderate. Demand and movement slow for extracted. Demand good for good stock on comb. Sales to jobbers: extracted, per lb., California white sage, 20-22c; white alfalfa, 18-20c; light amber, 16-18c. Comb: Colorado, 24-section cases, alfalfa, No. 1 best, \$6.25-6.50; dark, broken sections \$3.50 up. Beeswax: light, 48-50c; dark, 40-44c per lb.

Cleveland.—Practically no demand, prices lower. Sales to wholesale confectioners and bakers; westerns, 60-lb. tins, white orange blossom, 29c; light amber, 26c; sweet clover, 20c per lb.

Denver.—Receipts very light. Supplies liberal. Demand and movement very slow. Sales to jobbers: extracted, white to light amber, 18½-21c per lb. Beeswax, cash to producers, light, 38c per lb.

Minneapolis.—Supplies liberal. Demand and movement slow. Sales direct to retailers: comb, prices slightly higher; western, fancy white, \$7.50-8.00 per crate. Extracted: prices lower; western 60-lb. cans, fancy, 20-25c per lb.

New York.—Arrivals: 220 barrels West Indies, 25 barrels Mexico. Exported: 830 cases to Belgium, 280 cases to England, 92 cases, 1,050 barrels to France, 75 cases to Denmark. Demand and movement very slow, market weak, very few sales. Extracted, sales to jobbers: Cuban and Porto Rican, \$1.85-2.00 per gallon; New York State, clover, 16-18c; buckwheat 12-15c per lb. Western, too few sales to establish market. Beeswax: arrivals, 160 bags, 10 bales West Indies. Exported: 100 boxes to Australia. Demand and movement moderate; per lb., light 40-42c, dark 36-38c.

Philadelphia.—1 Calif. arrived, demand and movement very slow, market weak, very few sales. Sales to jobbers: extracted, New York buckwheat 13-15c per lb. Comb: New York 24-section cases white, light weight, \$4.85; California, heavy sage and orange \$6.75.

Spokane.—Receipts very light. Demand and movement slow. Quality and condition generally good. Sales direct to retailers: extracted, Idaho, water white in tins, 20-23c per lb.

St. Paul.—Supplies liberal. Demand and movement slow, very few sales. Sales to jobbers: extracted, per lb., southern, amber strained, in barrels 18-19c; in cans, 19-20c. Comb: practically no supplies on market, no sales reported.

St. Paul.—Supplies liberal. Demand and move-

ment slow, very few sales. Sales direct to retailers: comb, western, fancy white, \$7.50 per case. Extracted: 60-lb. cans, western fancy, 25-26c per lb.

Washington, D. C.

Charles J. Brand,
Chief of Bureau.

General Quotations of Wholesalers.

[These firms are asked to quote the wholesale price they make to retailers. Accordingly their prices must be figured at least one profit higher than the price paid the producer. The large dealers do not quote prices in print that they will pay futrely to producers.]

NEW YORK.—We quote from several of the leading honey-dealers in New York, under date of Mar. 15, as follows:

"Honey continues very dull. There is absolutely nothing doing either domestic or export. Stocks are large and offerings for shipment are heavy. In the absence of actual business, prices are purely nominal. Beeswax is in fairly good demand and arrivals are sold quite readily. There is also some business in futures. Extracted honey, light amber, in barrels, \$1.50 to \$1.90 a gallon; amber, \$1.60 to \$1.90. Clean, average yellow beeswax, per lb., 38-39c; dark, 35 to 36c."

"Market very quiet. Very few sales made. Difficult to find a buyer at any price. Extracted honey, white, 16 to 20c; light amber, in barrels, \$1.80 to \$2.20 a gallon; amber, in barrels, \$1.60 to \$1.75. Clean, average yellow beeswax, per lb., 36-38c."

"Price of white extracted seems to have fallen off considerably—many lots offered but no buyers. Buckwheat extracted a drug on the market; have offered some at 11c but no buyers. Seem to be considerable quantities still in producers' hands. We have bought white honey as low as 15 and 16c, which we shall have to carry over till next season probably, as the bottling trade is very quiet."

LIVERPOOL.—Since our report of Jan. 25, the condition of the market has not improved. Stocks, however, have increased considerably. We hear of small sales of Chilean No. 1 at 25c, and Californian at 24c. The beeswax market is too quiet to test prices fairly. Taylor & Co.

Liverpool, England, Feb. 25.

CLEVELAND.—The supply of comb honey is only moderate, but demand is very light, and market weak and declining. Comb honey, fancy, per case, \$7.00 to \$7.50; No. 1, \$6.50; No. 2, \$5.50. Cleveland, O., Mar. 15. C. Chandler's Sons.

SYRACUSE.—Practically no comb honey on the market, with a light demand at prices asked. Practically no demand for extracted. Comb honey, extra fancy, per case, \$7.00; No. 1, \$6.00. Extracted honey, white, per lb., 18-20c; amber, 16c.

Syracuse, N. Y., Mar. 15. E. B. Ross.

PORTLAND.—Market very unsettled. Positively no demand. Think producer has been holding for higher prices, which have not materialized. Comb honey in good demand, but extracted very sluggish. Comb, extra fancy, per case, \$7.50; fancy, \$7.25; No. 1, \$6.75; No. 2, \$6.50. Extracted, white, 17c; light amber, in cans, 16c; amber, 15c. Clean, average yellow beeswax—none offered.

Portland, Ore., Mar. 11. Pacific Honey Co.

PHOENIX.—Have had several inquiries as to price of honey for the coming season. A number of beemen extracted too closely last fall and are now losing their bees thru starving. If the present wind keeps up as it has for the past two weeks or more, there will have to be much feeding.

Phoenix, Ariz., Mar. 11. L. M. Lossing.

ST. LOUIS.—Comb honey in fair demand, and supplies very light. Extracted honey dull. Comb honey, fancy, per case, \$7.25. Extracted, light amber, in cans, 23c; amber, in cans, 21c. Clean, average yellow beeswax, per lb., 35c.

R. Hartman Produce Co.

St. Louis, Mo., Mar. 17.

CHICAGO.—Comb is scarce and sells on arrival, but sales of extracted in any quantity are not made. An occasional case is taken by that class who buy in a small way. No exports. Comb honey, extra

fancy, per case \$8.00, per lb. 35c; fancy, per case \$7.50, per lb. 33c, No. 1, per case \$7.00, per lb. 30c; No. 2, per case \$6.00, per lb. 25c. Extracted, white, per lb. 17-20c; light amber, in cans, 15-18c. Clean, average yellow beeswax, 40c per lb.
Chicago, Ill., Mar. 15. R. A. Burnett & Co.

KANSAS CITY.—The market is fairly supplied with comb honey, selling from \$7.00 to \$7.50 per case. Demand is light. Market is well supplied with extracted honey, selling slowly at 18 to 22c. Clean, average yellow beeswax, 35c per lb.
C. C. Clemons Produce Co.

Kansas City, Mo., Mar. 17.

MONTREAL.—Ample supplies. Prices steady. Comb honey, extra fancy, per case, 30c; fancy, 29c; No. 1, 28c; No. 2, 25c. Extracted honey, white, per lb., 26c; light amber, in cans 25c, in barrels 24c; amber, in cans 22c, in barrels 21c.
Gunn, Langlois & Co., Ltd.

Montreal, Can., Mar. 17.

TORONTO.—Market is dull—demand very light. Prices declining. 10-pound tins now selling at \$2.40, 5-pound at \$1.20, and 60-pound at 23c per lb.
Eby-Blain, Ltd.

Toronto, Ont., Mar. 17.

HAMILTON.—Honey is selling slowly. Have had to reduce prices to get it to move. Several lots offered from beekeepers last week, but could not take them, as no demand. Extracted honey, white, 23c per lb.
F. W. Fearman Co., Ltd.

Hamilton, Ont., Mar. 15.

TEXAS.—Honey prices have a downward tendency, buyers holding back waiting for new crop. Extracted honey, light amber, 18-19c. Clean, average yellow beeswax, 35c per lb.
Sabinal, Tex., Mar. 13. J. A. Simmons.

TRADE NOTES

CHANGE OF LOCATION OF THE A. I. ROOT CO.'S BRANCH OFFICE AT CHICAGO.

The Chicago branch of The A. I. Root Co., on May 1, will be removed from its present location at 215 W. Ohio St., to the 7th floor of the new Bauer Building at 224-230 W. Huron St., 4 blocks north of present location. This new location can be reached over the same surface lines or by way of the Northwestern Elevated, getting off at Chicago Ave. Station and walking 2 blocks south.

Distributors Root's Goods FOR PENNSYLVANIA

Send for new special catalog featuring the "Simplex" Super, and giving instructions to beginners

Prothero, Bailey & Goodwin DUBOIS PA.

BE CAREFUL In selecting your Foundation stock of any Breed

Rufus Red Belgian Hares

Only Pedigreed Registered Stock. Prices Reasonable

JOSEPH BLANK

428 Highland Ave. Mount Vernon, New York

WANTED.—A man or woman who is or has been a practical beekeeper and who can write a good letter. Give training and experience. Address The A. I. Root Co., Medina, O.

Write me for prices on queenless packages in quantity.
E. A. Harris, Albany, Ala.

STATEMENT OF OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., OF GLEANINGS IN BEE CULTURE, PUBLISHED MONTHLY AT MEDINA, OHIO, REQUIRED BY THE ACT OF AUGUST 24, 1912.

Editor, E. R. Root, Medina, Ohio; Managing Editor, H. G. Rowe, Medina, Ohio; Publisher, The A. I. Root Co., Medina, Ohio. Owners: The A. I. Root Co. Stockholders holding 1 per cent or more stock as follows: A. L. Boyden, Carrie B. Boyden, Constance R. Boyden, L. W. Boyden, Mildred C. Bryant, H. R. Calvert, J. T. Calvert, Maude R. Calvert, A. I. Root, E. R. Root, H. H. Root, Susan Root, all of Medina, Ohio, Ralph I. Bostwick, Seville, Ohio. There are no bondholders, mortgagees, and other security holders, holding 1 per cent or more of total amount of bonds, mortgages, or other securities.
H. G. Rowe, Mng. Editor.

Sworn to and subscribed before me this 20th day of March, 1919.
H. C. West, Notary Public.

PACKAGE BEES

Queenless packages as follows: 1 lb., \$2.20; 2 lbs., \$4.00; 3 lbs., \$5.75; untested queens, \$1.25; tested, \$2.50; select tested, \$3.00.
Safe Delivery Guaranteed.

E. A. HARRIS, ALBANY, ALA.

"Special Crops" A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. \$1.00 per year. Sample copy 10c. Address

Special Crops, Box G, Skaneateles, New York

BEE CANDY This specially prepared food for bees has given satisfaction wherever used. If you have any colonies that are short of stores by all means use this candy. Send for circular and catalog of supplies.

H. H. JEPSON

182 Friend Street

Boston, Mass.

Complete Line of

Beekeepers' Supplies

Catalog on Request

F. Coombs & Sons, Brattleboro, Vt.

Please Excuse O. N. Baldwin.

Baxter Springs, Kas., Mar. 5, 1919.

The A. I. Root Co., Medina, O.

Gentlemen:—You have got me in an awful fix. You placed my "ad" among the "Classified Advertisements Received Late," following several "for sale" ads, and everybody thinks I have packages of bees and queens for sale, when the fact is I want to buy. I have about 750 letters. What shall we do? Can you help us out?

O. N. Baldwin.

So please don't expect Mr. Baldwin to furnish you with queens and bees—and his "ad" did not say he would. But—how an advertisement in Gleanings does bring business!

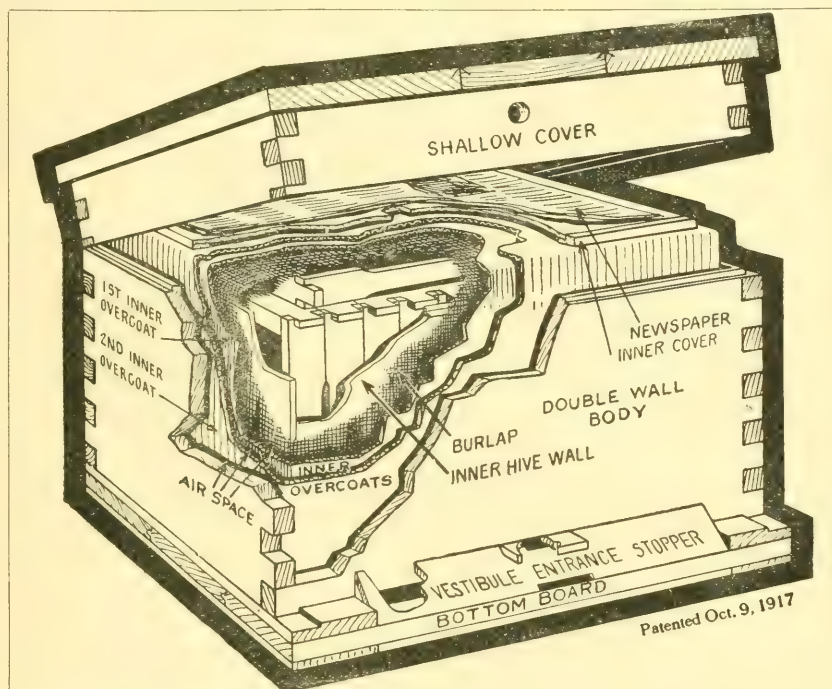
From Central NEW YORK

Shipments of Bee Supplies can be made promptly on time, and freight will be saved thereby. Beekeepers, as the years go by, are getting in the habit of ordering supplies earlier. This fall we had an exceptional increase of early orders. A few years ago, most, if not all, waited till May and June before ordering, with the result they were not prepared for the season. One of our largest beekeepers of the State made a practice of getting ready during the fall and winter and secured large returns during the season following. In fact, he cleaned up after the year's crop—all separators, supers, and everything piled away nicely. Now he is gone, but left everything in good shape. If every one would follow his example, what a large yield of honey would be secured. We are glad to say quite a large number do. Why not, if you have not already done so, estimate your requirements for next season? One of our beekeepers that secured a year ago \$10,000.00 worth of honey, this year secured \$14,000.00—a fortune. Why not get in line and get your share?

F. A. SALISBURY
1631 WEST GENESEE STREET
SYRACUSE, NEW YORK

Winter Problem Solved by the Hive with an Inner Overcoat.

For your information and to be convinced of the efficiency of this hive, send for a sample. For a limited time one sample hive will be sent set up and equipped as per this illustration at the special price of \$5.00.



SIMPLIFY YOUR WINTERING PROBLEMS. How would you like to eliminate the expense, extra labor, and inconvenience of that back yard full of contrivances, in Winter Cases and other forms of packing insulation? Wouldn't it be worth quite a lot to you to avoid such congestion? It will be to your advantage to avoid excess equipment. The Protection Hive will give you a neat, compact, substantial and efficient outfit.

Our new illustrated catalog for the season of 1919 and a special circular of the Woodman Protection Hive, showing 10 large illustrations will be sent upon request. Send us a list of your requirements and let us figure with you on your wants for the coming season.

A. G. WOODMAN CO., Grand Rapids, Mich., U. S. A.

The Best is the Cheapest

THIS APPLIES ESPECIALLY TO BEE SUPPLIES

Yes—in some isolated cases small lots of inferior goods can be bought for less money than

LEWIS BEEWARE

But bear in mind that when you buy LEWIS BEEWARE you buy something else besides good material and splendid workmanship—This something else is

LEWIS SERVICE

It costs money to establish and maintain a distribution service whereby no matter where you are you find LEWIS BEEWARE almost at your own door—to do this LEWIS Distributors must stock up in advance and be all in readiness when the season comes to give you—WHAT YOU WANT AND WHEN YOU WANT IT.

A WORD ABOUT THE PRICE OF BEE SUPPLIES

Remember labor and lumber are the important elements entering into LEWIS BEEWARE

FIRST---THE COST OF LABOR

Has not decreased since the Armistice was signed and prospects are it will be no lower for some considerable time to come.

SECOND---THE COST OF LUMBER

Is determined principally by the cost of labor and transportation—Both of these are high and will stay high—everyone agrees.

IN A NUT SHELL LEWIS BEEWARE IS SOLD
AT PRICES CONSISTENT WITH PREVAILING
MARKETS AND IS WORTH ALL IT COSTS.

PRICES WILL BE NO LOWER THIS SEASON

ORDER
LEWIS BEEWARE
EARLY



INSIST
ON THE BEEWARE
BRAND

G. B. Lewis Company

SOLE MANUFACTURERS

WATERTOWN, WISCONSIN

GLEANINGS IN BEE CULTURE

APRIL, 1919

EDITORIAL

A REPORT has recently gained circulation in California that E. R. Root, now in that State, had offered on behalf of his company \$25,000 to the metal-comb



An Untrue Report.

people for their patent. When Mr. Root first heard this report, he regarded it as a joke. But as the report has been again and again repeated and many beekeepers have asked as to its truth, Mr. Root has wired Gleanings to the effect that he has made no such offer whatever, and very certainly reserves his judgment of the metal comb until he has made a thoro test of it with the bees.

UNLESS MANY of our beekeepers will right about face, there is every reason to believe that the coming year may experience a comb-honey famine, and an overbalancing



Necessity for Comb-honey Production.

of the market with extracted honey. So nobly did the beekeepers rally to their country's call for an increased food supply by producing extracted honey and so well did the change pay the beekeeper during war time that many have forgotten the real place that comb honey held before the war, and the place it will again hold as the country gradually readjusts itself. No extracted honey, however excellent its flavor, can ever be quite so pleasing a table delicacy as fine comb honey.

A vast number of beekeepers changed over last year and are now planning to continue in the production of extracted—many of them large beekeepers, too. What is to be the result? Will there not be an overproduction of extracted with a corresponding slump in prices; and will not comb-honey production become nearly a lost art? If the public were sufficiently educated in the use of honey, there could be no possibility of overproduction for years to come. But the public is not yet sufficiently educated to demand honey as a food staple, so there is the need of large production of the more attractive kind of honey—comb.

Not every beekeeper is expert enough to raise comb honey. Those who are, and especially those that have the necessary equip-

ment on hand, could even now save the day, and incidentally increase their incomes for next year by returning to their previous practice of raising comb honey.



Prospects for the Coming Season.

KNOWING THAT our readers would be interested in the condition of colonies and the crop prospects for the coming season, we sent out queries to many beekeepers thruout the United States. Their kind co-operation enables us to report a fine condition of colonies generally and a good crop prospect the coming season. Only five per cent have reported anything less than good or excellent wintering. Eastern Virginia reports poor wintering, and California reports their colonies have wintered from 80 to 90 per cent as well as usual. More than one-third of the replies show a lack of stores. In a few cases equalizing will remedy the trouble; in others, feeding will have to be resorted to on account of early brood-rearing. Altho rather light stores have been reported from New Jersey, Massachusetts, Iowa, and eastern Virginia, the greatest shortage seems to be in the North and West.

Twenty per cent of those who replied to our questions either believed it too early to judge or else feared the open winter might have injured the honey plants, and were, therefore, unwilling to express an opinion as to crop prospects. Four per cent report the condition of the honey plants from 50 to 60 per cent of the normal condition at this time of year. The other correspondents consider the prospects all the way from good to excellent.



Require Special Attention.

BECAUSE OF THE exceptionally warm weather this past winter, colonies are now in an unusual condition for this time of the year. Some colonies, especially those with little packing, have been weakened by having the bees tempted out on sunshiny days only to become chilled and unable to return. Also, many colonies have been breeding earlier than usual and have

thus used up considerable quantities of stores. In the case of hives not sufficiently packed it is possible that a sudden cold snap may now result in the destruction of all this brood and the consequent loss in the honey and energy expended in its production. As soon as a warm enough day arrives, an examination should be made, and the stores replenished if necessary. If possible, frames of honey should be inserted; lacking these, a hard candy should be given.

We notice one of the journals having a million circulation has in its January issue an article discouraging the use of hard candy, and recommending as feed to be placed on the tops of the frames a soft candy made by mixing pulverized sugar with extracted honey. This is exceedingly poor advice to be spread broadcast over the country, and we heartily condemn it. Such candy, if fed at all, should be placed in a dish; for it soon absorbs moisture, runs down between the combs, killing all the brood with which it comes in contact, and gradually spreads over the bottom of the hive and runs out at the entrance. In some cases we have known an entrance to become completely closed by the candy, and the colony killed outright.

For a good candy we recommend the following: Place on the stove a granite or aluminum kettle* containing granulated sugar and a little water, stirring until the sugar is all dissolved and the syrup very thick. Then bring the syrup to a boil. As soon as the boiling begins, the stirring should be stopped and the boiling continued until when one dips a finger into cold water, then into the boiling syrup and back again into the cold water, a thin film hardens on the finger and will just crack when the finger is bent. At this stage the syrup should be removed and poured into pans lined with paper. When pouring the syrup the dish should not be scraped, nor the pans be moved or jarred until after the candy has hardened. When cold, the candy will be hard and transparent.



A CONSIDERABLE of a hornet's nest, or rather a bee's nest, was stirred up among



Some New Bee Legislation.

The beekeepers of California over some proposed legislation that called for a tax of ten cents per colony, license fees that might be revoked, and some appropriations of sums in amounts of \$10,000 and \$15,000 each.

It appears that a proposed law in California must be submitted 30 days in advance; but apparently legislators can get around that by proposing a dummy bill and then substituting another under the same title and number. There were several dummy bee bills introduced, with the expectation, so we are told, that they would be amended.

Whatever the bills were, they were unsatisfactory to the rank and file of beekeepers.

The Southern California Beekeepers' Association took up the fight against the bills and this was followed by the State Beekeepers' Association. Even members of the California Co-operative Honey Producers' Exchange repudiated the bills, notwithstanding that one of their members placed one of these bills in the hopper, with no thought of its passage in that form. Who is responsible for the others no one seems to know.

The thing that raised the ire of almost everybody was the proposed tax of 10 cents per colony and the scheme of licensing beekeepers, with the possibility of the license being revoked at the will and whim of the inspector. After several conferences, a meeting of all the parties interested was held, and it was tentatively agreed at that time to drop all legislation for the time being and wait until Dr. E. F. Phillips of the U. S. Bureau of Entomology and his corps of workers should come back into the State the following fall. There the matter seems to rest for the present.

There is probably nothing in a decade that has stirred up such a nest of mad bees, or more exactly beekeepers, as this proposed legislation of a tax of 10 cents per colony, a license scheme, and the various funds, the meaning and purpose of which no one seems to understand.



H. H. SWEET of The A. I. Root Company of California has for years used a scheme



A Clever Idea.

for making division-boards for early spring that is not only unique and cheap, but useful.

He wraps a newspaper of suitable length vertically around a common Langstroth comb. When this frame wrapped in newspaper is pushed down in the hive, the folds and projecting ends of the paper make a tight contact with the bottom-board, ends, and cover of the hive. A similarly wrapped frame on the other side of the brood-nest makes a tight warm compartment.

If the two outside frames of a 10-frame hive are wrapped in the manner explained, it makes on the sides a double-walled hive for an 8-frame brood-nest. As the season advances and the bees need more room, they gnaw away the newspaper and fill it with brood, pollen, or honey.

In the case of a 3-frame nucleus, this scheme of using two newspaper-wrapped frames can be used to most excellent advantage, for a nucleus should not have more room to keep warm than is absolutely necessary.

Mr. Sweet's scheme of making division-boards out of brood-combs and newspapers may save thousands of nuclei all over the United States. It is so cheap and simple that where a bunch of bees in the spring doesn't fill the hive, the beekeeper can't afford not to use it, if they are not otherwise protected.

"O H, yes!"
you say.
"Calif-

ornia, the land of sunshine, is a veritable paradise for bees. All you've got to do is to get the wild bees, that cost nothing, out of the rocks and they will earn you \$25.00 to \$50.00 per colony. Yes sree! Honey just rolls in every day for six months in the year. Bees work for nothing and board themselves. No cold; no sickness for the apiarist; no wintering problem; no bee disease for the bees. Yep! The gold dollars fairly roll off the sides of the mountains where the sage grows, and into the pockets of the beekeeper. Whoopee! Let's all go to California!"

As Good or Better Yields Elsewhere.

Many beekeepers of the East, tired of their cold and severe-winter problems, may desire to come here, thinking the conditions are like those named above. Would that they were! I have spent some two months here already, and my conclusion is that there are some real and serious problems here. The chances of a beekeeper making a success here are no greater, if as great, than in some of the good bee States of the East. As large, or larger, aggregate yields per colony are secured in Michigan, Wisconsin, Minnesota, Iowa, Ontario, or New York, in spite of their long severe winters. I am not so sure but that the Rocky Mountain States may be ahead in yield per colony.

As a matter of fact, the Eastern States usually secure their main crop in a month or

CALIFORNIA'S BEE PROBLEMS

*Many Disadvantages Out There.
As Good Yields in the East. The
Winters Are Hard on Bees*

By E. R. Root

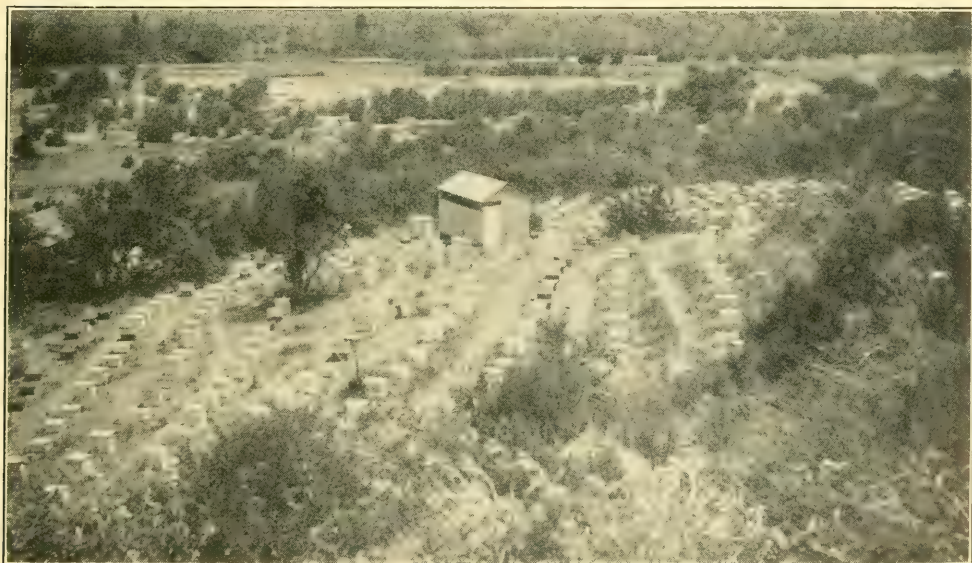
very little if in the cellar.

A Difficult Wintering Problem.

In California, as pointed out in the last issue, there is a real wintering problem. The cool nights, down nearly to freezing at times, and the warm days are very hard on the bees, and any one back in the East who imagines there is no cold, no chilling of brood, no bee mortality in California, is seriously mistaken. Unless one happens to be where there is plenty of eucalyptus and other sources of nectar, there is great danger also of starvation; and too many times the careless beekeeper has relied on winter flows that do not materialize, and his bees starve or are so weak as to be good for nothing. It is estimated by some good beekeepers in the State that colonies ought to have in reserve from 30 to 50 pounds of honey, because they say if these stores are not actually needed, they can be extracted in the spring just before the first new crop comes in. There is no question but that an ample reserve of stores is a good investment.

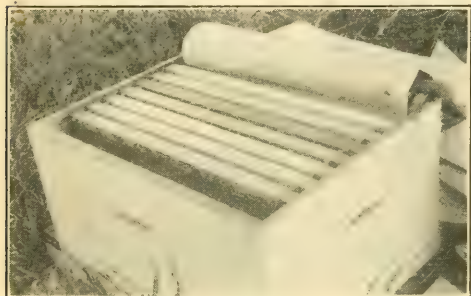
The real wintering problem here is that the breeding that goes on during the winter very often does not make up for the loss of the old bees that go to the fields and never come back, on account of chilly winds or the cold. Cold? Yes, during December,

six weeks' time. During the rest of the year the bees require only intermittent attention, and during the winter months, no attention if outdoors, and



No. 1.—Apiary of L. W. Wells, at Somis, Calif. This is a characteristic view of the thousands of apiaries scattered over the hillsides of California during the winter. Notice that the bees are in two-story hives.

January, and February an overcoat is not uncomfortable to the beekeeper, even in the daytime. Thousands of colonies all over the State, so I am told (and this is borne out by personal observation in yards that I have inspected), hardly hold their own. Many become so weak that they are little more than two- and three-frame nuclei. The chill of the night kills a great deal of brood; moreover it checks the queen, and the consequence is there will often be very small patches of brood on two or three frames



No. 2.—This should be studied in connection with Fig. 3. Method of packing a single-story colony that occupies only 7 frames. An ordinary city newspaper is just about the right width to cover the top and sides of a 7-frame cluster. The two ends project over the empty space on either side. Other folds of newspaper close up the space. See Fig. 3.

which the bees are just barely able to cover and keep warm when the temperature drops during the night.

Good management, particularly if the localities are at all favorable, to a large extent overcomes this heavy loss of bees from early fall until early spring; but even with the best of treatment there may or may not be a constant depletion in strength. The result is that colonies are not seldom too weak to take advantage of the orange flow, which is often heavy. So heavy is this flow that if there comes a day or two of cold and foggy weather, when the bees can not fly, that nectar will drip all over the clothing of the pickers, as they take the matured fruit off the trees. It should be understood that there may be ripe fruit as well as new blossoms on the tree at the same time.

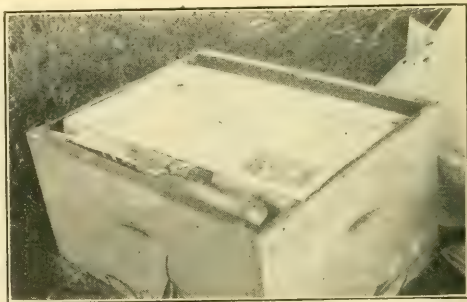
The Need of Protection.

What is the remedy? One word covers it, and that is **PROTECTION**. I am convinced that if bees need to be warmly housed anywhere in the United States, it is in California. From some experiments that I have been making, I find that I have been able to build up colonies very rapidly by reducing the size of their winter quarters or giving them wrappings of paper. In a number of apiaries that I have visited in the last month or so, I find that there are four-

and five-frame nuclei in the lower story of a 2-story 10-frame hive.* Bees in California, so far as I have been able to see, are wintered mainly in two stories. In the fall their colonies are strong enough to occupy only one story, but they need the other story, some say, for the stores. On account of the severe fluctuation of temperature between night and day, in too many cases the strength of the colony goes down much more than it does in the East where the colonies are well packed or put in cellars. I should imagine that the actual loss in California is as great as in some States where the winters are very severe. This does not mean a loss of colonies, but a loss of bees. From the standpoint of capacity to produce honey, it would be better to have 50 colonies of fair strength than to have 100 that are weak. This is an axiom in beekeeping that is so generally accepted that it doesn't need any argument to prove its truth.

I am convinced that N. A. Blake of Pasadena, Calif., is pursuing the right policy, when early in the fall he puts the story with the bees and brood **on top**, if it is not already there, leaving the other story with the combs of stores beneath. This puts the bees up in the warmest part of the hive. I find a great many beekeepers are leaving the bees in the **lower** story. When the cluster is down to five frames it is up against the problem of trying to keep its brood-nest warm, notwithstanding the heat is constantly rising into the upper story.

Some argue that they put the upper story on top to keep the combs away from the moth miller. They would be just as safe below the cluster. Others say that the bees



No. 3.—In some cases where the bees are packed this way, the paper becomes damp from the breath of the bees. In other cases bees will gnaw at the paper, carrying it out of the hive bit by bit. For this reason it is recommended to use oilcloth next to the bees and paper on the outside, as additional packing.

would breed too fast if on top, and that when put below the colonies are stronger in the spring. I can't see why.

What Kind of Protection.

I have spoken of the fact that I have been conducting some experiments. By crowding three- or five-frame nuclei down to the frames that they can actually cover

*Foul-brood Inspector Geo. B. DeSelleman of Los Angeles County tells me that he has for years been advocating wintering in one story because *two* stories make too much room for the bees to keep warm.

and putting them in one story, covering the frames with paper and filling the space with packing material, I find that the bees build up very rapidly. I took one little yard and crowded the bees down to the frames they were occupying, giving them frames of stores and taking off the upper story. The lower story was then packed in the manner stated. The result is that this little apiary is fairly booming.

In what form would I give the packing or protection? One thing I would do, I

bees on 15 or 18 combs of stores and then put packing on the sides. If packing should be put on top, this would give very good protection.

I am not sure but that double-walled hives in the State would be good economy. The extra walls would prevent the heat of the sun during the middle hours of the day from penetrating into the hive and stirring up the cluster to unusual activity. It would prevent the cold of the night from chilling the brood and would make it easier for the bees to take care of the brood than they can under the present plan of wintering.

The Problem of Bee Disease.

Another very serious problem is bee disease. In spite of all the inspection that has been carried on, bee disease, if I am correctly informed, is spreading in the State. What is needed is more education for the small beekeeper, and that means bee extension workers sent out by the State, whose function would be rather to educate as to how to know and distinguish the two types of brood disease and how to treat them.

If there is any Eastern man thinking of coming to California because he thinks that the State is a veritable paradise for keeping bees, he may find that he is jumping from the frying pan into the fire. That money has been made by keeping bees in the State cannot be disputed. I already know of a half-dozen beekeepers who last year went beyond the \$10,000 and \$20,000 mark in the production of honey. At the present high scale of prices, the very fact that bees can not be purchased at any price, and that they bring all the way from \$10 to \$20 a colony, shows that the business is not as bad as it might be.

Incidentally it might be remarked that what is good in the way of packing and pro-



No. 4.—Ford and trailer used by Mr. Sweet in moving the 18 colonies mentioned in the text. Notice that the wheel on the outside is wire. The mate to it on the other side broke down and was replaced by a wooden one "to get it home." A two-wheel trailer, if rightly designed, will carry from 700 to 1,000 pounds. In some places one can be rented for \$1.50 a day. Its cost will run all the way from \$50 to \$150. It is a very common practice in California for beekeepers to move their bees with a two-wheel trailer. All the way from 30 to 50 colonies can be moved at a time. The big mileages that can be covered make it possible for one to move 150 colonies in a day with this kind of equipment, but one should remember to have wooden wheels instead of those made of wire. See Fig. 5.

would follow the plan that Mr. Blake pursues of putting the brood-nest on top, not on the bottom. Furthermore, I would confine the bees to one story in localities where there was willow, eucalyptus, or other sources of honey during the winter. If the cluster couldn't cover 10 frames, I would squeeze it down to 8 or 6. I would put oil-cloth over the tops and sides of the cluster. Over this I would put newspapers so as to confine the heat to the space the bees can actually occupy; and I would use a double cover, one telescoping over the other. I would also contract the entrances.

A better arrangement, perhaps, would be to have strong colonies in the upper story with honey in both stories, and the more stores the better. If the beekeepers in the State had larger brood-nests, or larger hives, so that the stores and the cluster could be in one hive, it might be better. If I were using 13-frame, or long-idea hives, I would crowd the bees down to as many frames of stores as they could cover and then put packing on the sides. With the long-idea hive of 32 frames, one could crowd the



No. 5.—This is a better trailer and costs about \$150. It will handle easily at one load 50 colonies, or one ton of weight. For moving bees it is always best to have a strongly built machine.

tection in California during winter would be equally good in the Eastern States for bees taken out of cellars.

Sacking Bees for Moving.

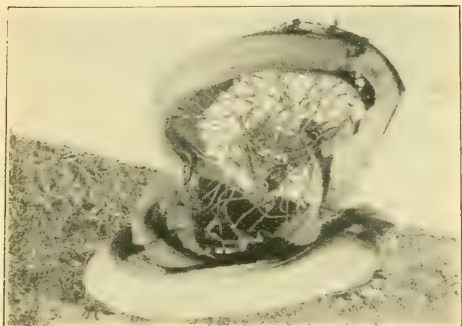
One night last week, H. H. Sweet, superintendent of The A. I. Root Company of

California at Los Angeles, asked me if I would not like to go out with him and move some bees after dark. Night is the worst of all bad times to handle bees. Mr. Sweet said that it would be necessary to take off the upper stories or supers and crowd the bees down to one story. "Do this after dark?" I asked. "Yes," he replied. "All right, I am game if you are," I said.

We had to drive about 17 miles. He hitched his Ford to a two-wheeled trailer which is better for a Ford than a four-wheel. No provision was made for any hive screens or entrance-closers. When he told me that the hives were very old and full of cracks, I remarked that we would have a mess on our hands. Pointing to a pile of burlap sacks, he said, "I am going to put them in those sacks." I had read of this trick, but was never present when bees were put up in that way.

"Those wire wheels—will they stand up under a load of 20 colonies and equipment?" I asked. "They are guaranteed to," said Sweet. "Maybe so," I said.

On arriving at the yard, we took off the supers, after smoking the bees at the en-



No. 5.—The thing that changed the sweetness of Superintendent Sweet's face to sour. What he *thought*, he said afterwards, wouldn't pass muster with A. I., not even with M.A.-O. Incidentally it may be observed that wire wheels are dangerous where heavy loads are used or fast driving is a pastime. The photograph tells its own story. If there is anything that is exasperating, it is to have a load break down along about midnight when moving bees.

trance. They came out all right and in some instances met us more than half way, even tho it was dark. My! how they did sting! After we had gotten the supers off and shaken the bees in front of the entrance, the next problem was to get them in the hives. A little smoking and coaxing (and some more stings) got them in. Mr. Sweet then went at the job of "sacking the bees." With a sack in one hand, he tipped a hive at an angle of 45 degrees, entrance up, and with the other slipped the sack over it as far as he could, then he set the hive down, pulled the sack back over, and tied the mouth with a heavy string. It was done in almost the time it takes to tell



Above is shown stage by stage Supt. Sweet's method of sacking bees for moving. The exact mode of procedure is shown in the order of the pictures, reading from above down. Where the hives are old, especially if they are full of cracks, or the cover does not fit tightly, this plan of moving bees is ideal. Even if the hives are good, it is probably cheaper than the entrance-closer and a hive screen over the top. To sack a colony is a matter of seconds only,

it. In an incredibly short time we had every colony sacked and loaded on the trailer. The bees made a hissing in the sacks and some of the colonies were very strong; but there was no danger of the bees suffocating, said Sweet, because they could get out into the sack, which was very roomy and porous.

We cranked the Ford and off we started. We got within three-quarters of a mile of our destination, and down went the right wheel of the trailer. The expression on Mr. Sweet's face was anything but "sweet." Wire wheels—he had had enough of them for all time. There was nothing to do but unload the sacks of bees and put them into the Ford, carrying ten hives at a time. Three loads carried the bees to destination, but in loading and unloading, some of the hives

fell off and rolled over on the pavement. I had expected that many bees would be smashed, but Mr. Sweet reported that not over 200 dead bees were found in any sack after the hives were unsacked.

I might remark that he didn't even take the time or trouble to fasten down the covers. He said he had moved hundreds of colonies in this way at night and always with the best of results.

When hives are old and full of cracks, the plan is ideal. I am not sure but that it is cheaper and quicker than entrance-closers and hive screens even when the hives are good. A set of sacks costing about ten cents each would be good for dozens of movings. The time is approaching in the Eastern States when many will move their bees. I suggest that the sack plan be tried.



THE question of spring management is "the question of the hour," and Gleanings has had the curiosity to look up the "authorities" on this subject, and set down together their teachings on each of its particular phases. This has not been a small task, but it has been an informing one. Perhaps the greatest revelation that came to us from reading a number of authorities on the same subject at the same time was the inadequacy of the indexing of these books. It's pretty nearly "fierce" in most of them. Next to the faulty indexing was our surprise to find the different authors treating of the same topic under entirely different heads. We were also surprised to find that certain of the problems of spring management regarded as important by some writers are hardly named by others.

But, as best we could, we have dug out from their written books what a half-dozen leading beekeeper authorities have said on spring management. Possibly, we have skipped what some may have said on the subject—especially if hidden away in the discussion of some other subject. But here are given the different authorities' views as we have found them.

Object of Spring Manipulation.

All agree that the object of spring management is to put the bees into the best possible condition for gathering the approaching honey flow.

(The following five sub-heads have been mentioned as having a bearing on the drifting problem.)

Time of Removal from Cellar.

L. L. Langstroth-Dadant.—"Unless the day when they are put out is very favorable,

EARLY SPRING MANAGEMENT

Comparison of the Views of Leading Authorities as to What to Do for the Bees in Spring and How to Do It

By Iona Fowls

many may be lost when they fly to discharge their feces. In movable-frame hives, this risk can be greatly diminished by removing the cover from the

frames, and allowing the sun to shine directly upon the bees; this will warm them up so quickly, that they will all discharge their feces in a very short time. To our minds, 45 degrees in the shade, or 55 degrees in the sun, is the lowest temperature in which it is best to put bees out."

Dr. C. C. Miller.—"Generally, I go by the blooming of the soft maples." "When the red of the blossoms actually begins to push forth," * * * "I watch the thermometer and the clouds, and usually in a day or two there comes a morning with the sun shining, and the mercury at 45 or 50 degrees, with the prospect of going a good deal higher thru the day."

Dr. E. F. Phillips.—"They should not be taken out until fresh pollen and nectar are available, unless they show pronounced signs of dysentery, as indicated by spotting of the hives or by undue excitement." * * * "To prevent drifting, it is best to set the bees out when it is too cold for them to fly, so that as the weather warms, permitting flight, this will take place more naturally."

M. Quinby.—"It is a good rule to leave them as long as they will remain quiet. In my own practice I prefer not to set them out until just as the soft or red maple begins to blossom." "It is much better to remove them on a cool than on a warm day."

W. Z. Hutchinson.—"Wait until the snow is gone, and there is occasionally a day warm enough for bees to fly, then take them out to remain permanently. If the

bees have to wait even a week or two after being placed upon their summer stands, before having a flight, no harm will come as a result, provided they have not wintered poorly."

E. W. Alexander.—"We like to keep them in the cellar until the most of that chilly weather is past." When it "has every appearance of bad weather for the morrow, we commence about sundown and carry out all of our bees."



L. L. LANGSTROTH.

"We don't want any to try to fly until they have been out two or three days."

A B C and X Y Z of Bee Culture.—"Advise waiting till the time when natural pollen comes, or in our locality, soft maple bloom." (Endorses Alexander plan.)

Setting Out at One Time or in Installments.

Langstroth-Dadant.—"If the hives are all removed from the cellar on the same day, there will be little danger of robbing."

"At different times we have seen bees desert their hives." "The worst of these desertions is when the bees have suffered while wintered indoors." "When such desertion is feared, it is better not to put out more than one dozen colonies at one time, and to prepare a few dry combs in clean hives, to have the swarm as soon as possible."

Dr. C. C. Miller.—"Some object to taking all the bees out at the same time." "I have never had much trouble in that way."

M. Quinby.—"Eight or ten hives should be set out at once; after they have been out two or three hours, set out as many more. When all are taken out at one time, they are quite sure to mix and unite with colonies where they do not belong."

E. W. Alexander.—"We commence about sundown and carry out all of our bees—yes, even if it takes not only all night, but into the next day."

A B C and X Y Z of Bee Culture.—"When bees are set out two or three different times, those first set out having marked their locations, and having quieted down, are quite liable to rob those set out afterwards."

Placing Colonies on Their Old Stands.

L. L. Langstroth-Dadant.—"As bees remember their locations, it is important to return each colony to its own place."

Dr. C. C. Miller.—"Sometimes some attempt is made to have colonies occupy the same stands they occupied the previous years, but oftener no attention is paid to this."

Dr. E. F. Phillips.—"Colonies which are wintered in the cellar need not be put in the same locations that they occupied the previous year."

M. Quinby.—"They are more particularly

disposed to do so," (to mix), "when any stands have been changed or set in a new place." "It is an advantage, but not all-important, that each hive occupies its old stand when set out in the spring. To this end, they should be numbered, and when brought out they can be placed where they are to remain."

E. W. Alexander.—"This loss (from spring dwindling) can also be almost wholly prevented by placing the hives, when taken from the cellar, so the entrances will face the north." [Evidently not on old stands.]

A B C and X Y Z of Bee Culture.—"After bees have been shut up in the cellar over winter they can be placed back on the old stands they formerly occupied or they can be put anywhere in the yard."

Contraction of Entrances.

L. L. Langstroth-Dadant.—"The entrance also must be reduced."

Dr. C. C. Miller.—"As soon as my bees are taken out of the cellar, the entrances are contracted to a hole three-quarters of one inch square."

Dr. E. F. Phillips.—"The entrances may be reduced, or, if necessary, may be closed with wet cloths."

M. Quinby.—"Keep entrances contracted to prevent robbing."

W. Z. Hutchinson.—"If the entrance is contracted so that only one or two bees can pass, a strong colony can make no more of a demonstration than a weak one."

E. W. Alexander.—"We allow an entrance only $\frac{3}{8}$ by 1 inch, and sometimes less; then when a warm day comes, we enlarge it according to the needs of the colony; then towards night close it again if it is likely to turn cold."



C. C. MILLER.

Other Preventions of Drifting.

Among other suggested factors of drifting are the following:

M. Quinby.—(If they drift) "the best way is to simply change hives, taking the strong one to the stand of the weak one, and the reverse."

Dr. E. F. Phillips.—"It is claimed * * that if the cellar is well aired the night before the bees are to be removed they will be in better condition and will drift less; but it is not clear what difference this can make unless the clusters are made tighter because of lower temperatures."

Cleaning Hives.

There seems to be little question among these authorities that it is sometimes advisable to clean out the hives early in the spring instead of leaving it for the bees to attend to later. If colonies have wintered as they should, about the only thing that can be cleaned out is the propolis.

Spring Protection.

L. L. Langstroth - Dadant. "The hives should be located in a warm, sunny, well-sheltered place." * * * "The heat should be concentrated in the brood-apartment, by all means, and not allowed to escape above."

Dr. E. F. Phillips. "It is preferable to provide packing for these colonies even if it is only a wrapping of waterproof paper over the hives."

M. Quinby. "Shut off all upward ventilation to retain the warmth."

W. Z. Hutchinson. "A sheet of tarred building-paper folded down over the hive, and fastened at the lower edges by tacking on strips of lath, will answer every purpose." * * * "It will save the loss of brood and weak colonies if there comes a 'squaw winter' in the month of May."

E. W. Alexander. "I wish to call your attention to the importance of keeping your bees as warm as possible all thru the spring. If you can, try to have them set where they will have a natural windbreak of some kind." (See Entrances.) "Also cover your hives with tarred building-paper." * * * "If you will do as I advise," * * * "so far as keeping them warm is concerned, they will gain fully three weeks' time, over the way they are generally cared for."

A B C and X Y Z of Bee Culture. "It may be necessary in some climates, after the bees are set out of the cellar on their summer stands, to provide some sort of protection." * * * "If they are in winter packing-cases" * * * "leave the packing on until settled warm weather has arrived."

When to Examine the Colonies.

L. L. Langstroth - Dadant. "In early spring."

Dr. C. C. Miller. "I do not want to open up the hives except at a time when it is warm enough for bees to fly freely. Too much danger of chilling the brood."

Dr. E. F. Phillips. "On a fine warm day when the bees are flying freely, he should make a first general examination."

M. Quinby. "After the first flight, the queen will commence depositing eggs. Each hive should now be examined to ascertain its exact condition."

E. W. Alexander. "Shortly after taking them from their winter quarters."

A B C and X Y Z of Bee Culture. "All colonies should be gone over very carefully as soon as bees can fly."

Required Stores.

L. L. Langstroth - Dadant. "The bees should be provided with sufficient stores of honey, pollen, and water." * * * "The best way to feed destitute colonies in spring is to give them combs of honey."

Dr. C. C. Miller. "Theoretically at least, I see that every colony as soon as it comes out of the cellar has plenty of stores to last it for some time." * * * "for the ordinary colony, the equivalent of two full combs of stores."

Dr. E. F. Phillips. "Whether the bees have sufficient stores he can determine by lifting the hives." * * * "If food is needed, it may be given rapidly in the form of a thick sugar syrup, or it is even better to give combs of honey."

M. Quinby. "Look well to any scarcity of honey that may occur, and supply all deficiencies by feeding." * * * "If any are found destitute of sealed honey, supply them from such as have a surplus, or with combs reserved for the purpose."

W. Z. Hutchinson. "If the hives are well protected and the bees supplied with an abundance of sealed stores, natural brood-rearing will proceed with sufficient rapidity, early in the spring."

E. W. Alexander. "In the spring, if the bees have little or no honey they should be fed at once five or six barrels to prevent starving. This syrup should be about the consistency of good honey."

A B C and X Y Z of Bee Culture. "Unless they have two or three combs of honey, stores should be taken from some other colonies that can spare them. If no hives have the surplus, the needy should be fed a thick syrup consisting of two parts of sugar to one of water."

The Need of Water in Spring.

L. L. Langstroth - Dadant. "Apianists in general do not attach enough importance to the necessity of furnishing water to bees in cold springs, in order that they may stay at home in quiet." * * * "That bees can not raise much brood without water unless they have fresh-gathered honey, has been known from the time of Aristotle."

Dr. C. C. Miller. "It is important to start the watering-place early in the season, before the bees make a start at some pump or other place where they will be troublesome." * * * "(I use a half-barrel), put in as much water as you like, and on this put so much of the cork-chips that the water will barely come up enough for the bees to reach."

Dr. E. F. Phillips. "Bees need water for brood-rearing and it sometimes happens in the spring that bees are lost trying to obtain it. If there is no water close at hand, it is often advantageous to provide a watering place in a warm sheltered spot, or near the apiary."

E. W. Alexander. "They require water at that season as much as they do honey." * * * "This syrup furnishes both food and water mixed together, which is very necessary to encourage early breeding."



DR. E. F. PHILLIPS.



M. QUINBY.

A B C and X Y Z of Bee Culture.—“furnish bees water on the atmospheric principle.” * * * “When bees are compelled to go a distance for water they wear themselves out unnecessarily, and during chilly weather in the spring, they never get back.”

Contraction of Brood-chambers.

Langstroth-Dadant.—“When such desertion is feared,” * * * “the capacity of the hives” * * * “should be reduced to suit the size of the swarm, and increased cautiously, from time to time, when the bees seem to be crowded.”

Dr. E. F. Phillips.—“The brood-chamber may also be reduced to conserve the heat of the cluster.”

M. Quinby.—“Set aside such combs as are not occupied by the bees, leaving those that contain honey.”

A B C and X Y Z of Bee Culture.—“Unless the colony is very weak, take out the surplus of combs that it does not occupy or use, and crowd the little cluster on as few frames as it can occupy.”

Uniting Weak or Queenless Colonies.

Dr. C. C. Miller.—“very weak colonies in the spring.” * * * it seems no use to unite them, for I have



W. Z. HUTCHINSON.

united five into one, and the united colony seemed to be no better than one left separate. About all that I try to do is to keep the queen alive until I find some queenless colony with which to unite them.” * * * “A safe way is to place one hive over the other with a common sheet of newspaper between.”

Dr. E. F. Phillips.—“It is often advisable to unite the weak colonies with the medium or strong colonies,” * * * “a simple method of uniting consists in making the weak colony queenless and setting it over the colony with which it is to be united, with a single thickness of newspaper, slightly perforated in the center, between the two.”

M. Quinby.—“If colonies are found to be queenless, or possessing deficient queens, unite them with others having queens. It will often be judicious to unite weak colonies.”

E. W. Alexander.—“After the weak colonies have a little uncapped brood, set them on top of a strong colony with a queen-excluding honey-board between, and close all entrances except what they have thru the excluder. This we do about five days after they are taken from the cellar.” * * * “This is, without exception, the best and most practical way of caring for those little weak colonies in early spring that has ever been made public.”

A B C and X Y Z of Bee Culture.—“Where colonies are very weak it may be

advisable to unite; but this uniting, if the bees are in the cellar, should take place before they are set out.” * * * “Never unite two weak ones, but add a weak one to a medium, and thus make it strong.” * * * “moving the weak colony over to the strong one.”

Equalizing the Colonies.

L. L. Langstroth-Dadant.—“The apiarist will learn which colonies require aid, and which can lend a helping hand to others.”

Dr. C. C. Miller.—“Shall I take frames of brood from the strong colonies to give to the weak ones? Not I. For the damage to the strong colonies will more than overbalance the benefit to the weak ones. If any taking from one colony to give to another is done in the spring, it will be to take from the weak to give to those not so weak.” * * * “Not until a colony has six or eight frames of brood is it desirable to draw from it brood for weaker colonies, and there's no hurry about it then.”

Dr. E. F. Phillips.—“If some hives contain more brood than the average, colonies may be equalized by taking combs of emerging brood with the adhering workers away from those abundantly supplied, giving them to weaker colonies, care being exercised not to transfer the queen. The weakest colonies in the apiary should be assisted in this way only after all the others are equalized;” * * * “Another method of equalizing is to shake the bees from the frames of a strong colony in front of the entrances of those to be helped.”

M. Quinby.—“When one hive has an oversupply of bees, and another a very fair, the next day after being set out, I change the weak one to the stand of the strong one,” * * * “cards of brood may often be taken from the best stocks and used to strengthen weaker ones to advantage.”

W. Z. Hutchinson.—“If the weak colony is to be strengthened by drawing upon the resources of the strong, I would prefer the plan given in Gleanings by J. L. Byer.” The plan referred to was to shake bees from a strong colony in front of the weak one. He also mentions changing places with weak and strong colonies.

E. W. Alexander.—“We also give them” (colonies with two-year-old queen) “frames of brood from other colonies.”

A B C and X Y Z of Bee Culture.—“The latter will be too strong and the weak too weak. Some have practiced exchanging places with the two colonies.” * * * “Colonies that are very strong in the spring will build up faster, relatively, than the weaker ones; and these can sometimes supply frames of hatching brood and bees to the stocks that are below par.”

Clipping Queens.

L. L. Langstroth-Dadant.—“This method will do, provided the apiary ground is bare, so that the queen runs no risk of getting lost in the grass. We abandoned it,

after having tried it for several years, but we know of some large apiarists who are successful with it."

Dr. C. C. Miller.—"For if a colony should have an unclipped queen there is a fair chance that it might swarm and decamp;" * * *

Dr. E. F. Phillips.—"The clipping of queens is advantageous in the control of swarms," * * *

M. Quinby.—"I am satisfied that I have had many fine queens superseded from the dissatisfaction of the bees with a queen with this imperfection. I do not imagine, however, that it is any real detriment to the value of the queen."

W. Z. Hutchinson.—"When swarming is allowed, I believe that the majority of advanced beekeepers now have their swarms by having the queens' wings clipped, and allowing the bees to return to their old location," * * *

A B C and X Y Z of Bee Culture.—"The majority of honey-producers practice what is known as clipping;" * * * "There are very few who believe, or profess to believe that clipping is injurious to the queen."

Stimulative Feeding.

L. L. Langstroth-Dadant.—"To build up strong colonies by feeding requires more care and judgment than any other process in bee culture, and will rarely be required by those who have movable frame hives." * * * "When bees first begin to fly in the spring, it is well to feed them a little, as a small addition to their hoard encourages the production of brood." * * * "Colonies which have abundant stores may be incited to breed by simply bruising the cappings of a part of their honey."

Dr. C. C. Miller.—"But it takes a good deal of wisdom to know at all times just how to manage stimulative feeding so as not to do harm instead of good; and I am not certain that I have the wisdom." * * * "If a colony comes out of the cellar strong, and with combs full of stores, I have some doubts if I can hasten its building up by anything I can do. So my feeding in the spring is to make sure they have abundant stores rather than for the stimulation of frequent giving."

Dr. E. F. Phillips.—"If a colony has wintered well, has a good queen, is in a large hive, abundantly supplied with stores, and is well protected from changes in temperature, it is doubtful whether it can be stimulated to much greater brood-rearing than these conditions will bring about. Even if stimulative feeding results in increased brood-rearing, as it may under some circumstances, the beekeeper may still find it to be unprofitable practice."

M. Quinby.—"Use honey or thick syrup." "Care should be taken not to give them too much." "Begin as soon as they will take it up in the spring, and continue in

accordance with the weather until white clover blossoms or swarms issue."

W. Z. Hutchinson.—"is now looked upon by many as of doubtful value;" * * * "The only time that spring feeding is advisable is where there is a dearth of nectar, after the early spring flow and before the coming of the main harvest."

E. W. Alexander.—"If made of one pound of sugar to three pounds of water, it gives the best results." * * * "Now, if you have done your duty by your bees since taking them from their winter quarters as I have recommended in the above, keeping them snug and warm, and feeding them a little thin syrup nearly every day for the first 30 days after they commence to fly, you can have two good strong colonies in the place of one, ready to commence work on your clover harvest," * * * "With us, spring feeding has been the means of our securing fully twice the amount of surplus honey from nearly every colony."

A B C and X Y Z of Bee Culture.—"Experience seems to show that spring feeding very often does more harm than that good by over-stimulation." * * * "Many beekeepers of experience, especially in some localities, can doubtless practice spring feeding to advantage; but as a rule beginners will do better to give all their colonies enough in the fall."

Spreading the Brood.

Dr. C. C. Miller.—"For some years I have been of the opinion that for me there is no time when it is profitable to spread brood."

Dr. E. F. Phillips.—"If the brood-cluster is divided and an empty comb is inserted, the bees will attempt to cover all the brood, and, in so doing, that part of the empty comb which intervenes will be kept warm enough so that the queen will lay eggs therein." * * * "This is attractive in theory, but in practice is attended with danger," * * * "The beginner should by all means leave the amount of brood to be determined by the bees." * * * "Stimulative feeding and spreading of brood should not be practiced early in the spring, but should be confined to a period of six or eight weeks just previous to the particular honey flow for which the beekeeper is building up his colonies."

M. Quinby.—"It is often best to place these" (empty combs) "in the center of the strong swarms, in such a position in the brood-nest that the queen will immediately occupy them."

Pollen Substitutes.

L. L. Langstroth-Dadant.—"Dzierzon, early in the spring, observed his bees bringing rye meal to their hives from a neighboring mill, before they could procure any



E. W. ALEXANDER.

pollen from natural supplies. The hint was not lost; and it is now a common practice wherever beekeeping is extensively carried on." * * * "Shallow troughs or boxes are set not far from the apiaries, filled about 2 inches deep with finely ground, dry, unbolted, rye meal, oatmeal, or even with flour."

Dr. C. C. Miller.—"I hardly know which is best, and I have of late used principally corn and oats ground together." * * *

Dr. E. F. Phillips.—"It can scarcely be said that we know that the giving of substitutes for pollen is serviceable in brood-rearing." * * * "We are not justified in concluding that the giving of substitutes

for pollen is useless, however, and no harmful results are recorded from the practice."

M. Quinby.—"When practicable feed rye, ground very fine, and unbolted." * * * "It should be remembered that flour feed is only advantageous in the earliest part of the season."

E. W. Alexander.—"Years ago we set out our bees much earlier than we do now, and we frequently gave them rye meal to work on as a substitute for early pollen. This practice caused them to leave their hives in search of flowers many days when the air was too cold for them to fly in the shade, and so we discontinued it some time ago."



THE first of April is a significant date, for our location, for it marks approximately the date for the beginning of the critical brood-rearing period of spring, the period during which the workers for the harvest are reared. Our honey flow may begin about the first of June. It does not always do so but often enough so that we can not afford to fail to have the bees ready at that time, and we need about two months of constantly increasing brood-rearing to get ready for it. Fortunately, in our locality (the clover region), the honey flow comes about two months after the bees naturally begin brood-rearing in earnest. The workers for the harvest, therefore, are produced largely during the time the colonies are most willing to co-operate by rearing the greatest amount of brood, in proportion to their population, of any similar period during the year.

Workers for the Harvest Should be Young.

Brood-rearing usually begins moderately in April, and, unless something happens to prevent, increases steadily until the first of June or later, so that if there is time enough brood-rearing reaches its maximum about the beginning of the honey flow. This makes the vast majority of the bees in the hives on June first quite young or from brood reared during the month of May. It is fortunate that the bees do it this way instead of the other way around, even if they could do it that way, for if many bees were reared in April and few in May, we might have colonies of the same strength so far as numbers are concerned but greatly inferior in ability to gather and store a good crop of honey.

We have had many colonies that forged ahead in brood-rearing during April but failed to keep the pace during May on ac-

WORKERS FOR THE HARVEST

Colonies Should be Built up Promptly and Quickly for the Honey Flow Instead of on the Honey Flow

By Belva M. Demuth

count of a failing queen or a shortage of stores. In every case, so far as we know, these colonies, in proportion to their population, have done the poorest

work during the honey flow, presumably on account of the greater age of the workers. We have made up colonies at the beginning of the honey flow entirely of field bees, uniting the field force from each of several colonies for this purpose, and at the same time made up colonies of equal numerical strength but composed entirely of young bees. In every case the difference in the amount of honey stored by the two sets of colonies was overwhelmingly in favor of those made up of young bees.

What Constitutes Strong Colonies.

When we speak of the strength of colonies we usually mean the number of bees, without reference to the difference in the strength and endurance of the individuals, due to their age. Dr. Miller recently used an apt expression to bring out this distinction when he said, "Strong colonies of strong bees." For best results with our short honey flow it is necessary not only that each colony be built up to its greatest possible numerical strength by the time the honey flow begins, but also that this building up be done so quickly that most of this great horde of workers shall be young bees, recently emerged, ready to go into the fray while in possession of the full vigor of their youth.

We are accustomed to thinking of these bees, reared at this time, as a special honey-gathering crew whose purpose in life is totally different from all the other bees reared during the year, for with our conditions all the bees reared at other times can be useful only in the maintenance of the normal strength and prosperity of the colony until

the arrival of the time for another supreme effort next year in the rearing of the crew of workers for the harvest. A longer honey flow would of course modify this view. This gives to the brood-rearing period of April and May, especially the latter month, an importance far greater than that of any other similar period during the year, for all other brood-rearing, so far as we are concerned, exists for the sake of the brood-rearing during the eight weeks just preceding the main honey flow.

What If Locality Affords More Than Two Months of Extensive Brood-rearing Previous to the Honey Flow?

We are sometimes inclined to envy those who have a longer time between the beginning of brood-rearing in the spring and the main honey flow than our locality affords, yet such a condition would probably not give so large a proportion of young bees at the beginning of the honey flow and would result in some of the early reared workers not being utilized to best advantage. I can see how colonies might be built up strong enough to divide six or eight weeks before a later honey flow, if the main honey flow should come so late that this could be done, then both colonies encouraged to multiply quickly their numbers fivefold before the honey flow begins. Whatever the date for the beginning of the main honey flow we can not afford to have even the slightest interference with brood-rearing during the preceding six or eight weeks.

Spring Manipulations.

We find ourselves handling the bees less and less during the spring, as the years go by. The colonies wintered outdoors are not unpacked until about the last week in May. If queenless colonies are found earlier, they are united with colonies whose population is below the capacity of the queen. If there are any very weak ones, no attention is paid to them except to try to find the cause of weakness in order to avoid such colonies in the future, for we have never found it profitable to spend time nursing along very weak colonies in the spring. We have been thru the mill of stimulative feeding, spreading brood, and other early spring nursing, and doubt if any of this has ever been profitable. We simply try to see that every colony has what it needs for best development at this time and then leave them alone. If they have good vigorous queens and are normal as to number and vitality of workers the first of April, there are but few things that can happen during April and May to prevent rousing colonies by the first of June. These few things, however, are extremely important, since any one of them may cause good colonies to drop out of the race just before reaching the goal toward which we have been working since last August. Among the dangers that threaten the colonies at this time are a failure of or some accident to the queen, insufficient

room for brood-rearing to the greatest capacity, and insufficient stores (either from the fields, feeders, or stored in the hives) to stimulate unrestricted brood-rearing.

More Room Needed for Brood-rearing.

Well-wintered colonies of normal strength and conditions usually, sometime in May, need more room for brood-rearing than that afforded by a single brood-chamber of 10-frame Langstroth capacity, especially if the single brood-chamber must contain both the stores needed at this time and the brood-rearing space. We have added to the equipment of each colony an extra brood-chamber to give room for the greatest possible development of each colony previous to the honey flow. This adds considerably to the cost of a comb-honey equipment, but with our conditions it also adds handsomely to the season's profits. Besides acting as a safety valve for the expanding brood-nest this extra brood-chamber when supplied with five or six frames of honey makes one of the best feeders to stimulate brood-rearing I have ever seen.

Importance of Abundance of Stores.

One of the hardest things we have had to learn is the large amount of stores needed for this heavy brood-rearing. When the bees have no opportunity to gather from the fields because of cold or wet weather the honey stored in the hives disappears with surprising rapidity. From some experiments which he conducted some years ago, R. L. Taylor concluded that it requires about a frame of honey to produce a frame of brood. It is difficult to realize that the 10 to 12 or more frames of brood which we hope to have in the hives on June first will cost the equivalent of as many frames of honey, yet many times we have seen several frames of sealed honey disappear during cold rainy weather in May, and brood appear in its place. We occasionally have a good honey flow from apple blossoms and have had the second story filled with honey from this source, but instead of being able to extract a crop of apple-blossom honey we have had to be content to see most of it disappear and frames of brood take the place of the frames of honey. Whenever this has occurred in our apiaries, all colonies that were at all well wintered have produced a fair crop of honey even during the poorest seasons and bumper crops in good seasons.

"Strong colonies of strong bees" (strong for the season) on April first, to which are added more stores than they can possibly use and more vacant cells for brood-rearing than they can fill, make a combination that practically insures a fivefold increase in population, by June first. The miracle of large increase is worked in the months of April and May—more in May than in April. Then, with strong colonies an accomplished fact, the mighty hordes of workers for the harvest leap into being at the very nick of time FOR the honey flow, instead of building up later ON the honey flow.



ANNE LESTER AND DADDY LOWE, BEEKEEPERS



By Grace Allen—Chapter III

ONE morning Mr. and Mrs. Lowe and Anne Lester stepped out on the side porch after breakfast, and stood looking a few minutes at the beauty of the April morning.

"It feels like Sunday," Anne remarked. "That's because we had waffles for breakfast," smiled Mrs. Lowe.

"Maybe so. I never had them at home except on Sunday. And then the orchard is so dressed-up and blossomy—and so quiet, as if everything was waiting for the sermon."

"Or the benediction," Mrs. Lowe added softly.

Anne turned swiftly. "Don't you love the benediction better than any other part of church? It's so—so sort of—"

"Holy," finished Mrs. Lowe simply.

Anne nodded. It was very quiet for a few minutes. Then the girl started down the steps, calling Shep.

"I've just got to get out into this," she declared. "Shep, race me to the orchard!"

Off they ran. When they came loitering back half an hour later, Anne was bearing boughs of apple bloom.

"What did you find in the orchard, Anne?" asked Daddy Lowe.

"These," Anne answered, laying the blossomy branches in Mother Lowe's lap, and sitting on the step near her rocker; "with bees humming in them till the trees sounded like giant cats purring in the sun. It's a thrilling morning."

"Shep," warned Mother Lowe, "don't you go getting temperamental, and start chasing purring trees!"

Anne laughed. Then Daddy Lowe rose. "I'm going into the bees today. Anybody going along?"

"Yes, and can't I really help?" Anne asked.

"Not much at first. But you can learn."

"You see, if I'd stayed in town, I'd have been deep in Red Cross work and other war work. I've got to do something that counts. If I can help produce some honey, that will be very much worth while. Of course, now that I've learned to knit"—laying a grateful hand on Mrs. Lowe's knee—"I expect to do a lot of that, too, but—"

"Don't you stay indoors, child, and settle down to knitting mornings like this," Mrs. Lowe interrupted. "Go on out and fuss with the bees."

A little later Daddy Lowe and Anne were in the shop at the edge of the bee-yard. "Put on one of these veils," he directed.

He lighted the smoker, in which Anne was much interested. Then he brought out two hive-seats.

"Such handy little seats," Anne approved, "with places to put things on each side."

A few deft, strong motions with the hive-tool, and Daddy Lowe had raised a super enough to puff a bit of smoke in gently. Then he set the super off. Anne drew a quick breath. "Is that all bees?" she demanded, awed, looking in the open hive.

"Bees and combs and honey and pollen and brood and—"

"Thanks. Just which is which?"

Daddy Lowe loosened the comb nearest his side and drew it out, dry and empty. "Sometimes I start removing combs from one place and sometimes from another," he remarked. "I could see there were no bees over here, so it was easy to take this one out first, and give more room to work with the others. This, then, is merely empty comb, such as you have already seen in the shop."

Loosening the other combs, he crowded part of them over towards the empty space, and gently lifted one from near the center. It was covered with bees crawling apparently aimlessly over its surface.

"Laying queen, all right," he announced with satisfaction.

"Where?" with some excitement.

"Not on this comb. I haven't seen her, but there must be one, because—look."

Then he showed her the hope of the hive, the brood, the wonderful early stages of bee life.

"Oh, I can't see the woods for the trees!" she wailed despairingly. "I can never learn about bees where there are so many of them."

"Don't call this a lot," he admonished. "Wait till summer, when there really are some." He gave the comb a quick shake, and off dropped most of the bees. Then he handed it over to the girl.

"Now!" she exulted.

"Can you see the eggs?" he asked. She could not. So he went round to her side, tipping the comb so that the light struck into the cells where the fairy-like eggs lay.

"You mean those tiny white curvy things?" she queried incredulously. "Those? Are they dreaming there of wings, those little wee specks? They really think they'll get them?"

"The wonder of it is they'll get them without thinking about it at all. The scientists would object mightily to your putting a dream inside one of them!"

"I didn't put it. God did. Else the wings would never grow. And no doubt can shoo it away. It mayn't be like what we call dreams, but it's there, something that urges and reaches out and grows and started with the beginnings of things. Assuming, of course, that these really are eggs."

"They really are eggs. Look further and you'll see the larvæ."

"The worms—ch, yes! The little old fat things! Aren't they roly-poly? Here are

some right little ones, tho—evidently just hatched out. But isn't it too bad to have to be a worm in order to get wings, and fly?"

Daddy Lowe smiled. "Sometime we'll talk that out," he promised. "But now let's finish with this comb, so we can go on with our work. Inside the cells that are sealed with the brown coarse covering, the worms are getting their wings. The cells around the top, with a lighter seal, contain honey."

Anne was so interested that she yielded the comb reluctantly. But when Daddy Lowe, drawing out another, announced the queen on it, she fluttered over to his side, all excitement.

"You beauty!" was all she said, "You slim golden beauty!"

"Do you see that the wings on one side are clipped off?" the man asked.

"Sure enough," she agreed; "Why?"

"To keep her from flying away with a swarm. And that keeps the swarm from flying off, for they won't go without their queen."

One after another the combs were examined, Daddy Lowe marking down in a record book the estimated amount of stores and brood on hand—or food and babies, as Anne said. "When I find about how the different colonies are running," he explained, "I shall probably take some honey and some brood away from part of them to give to those a little backward."

In another hive he pointed out the pollen cells, packed with their hard, dry, varicored treasure. "And you've seen the bees coming in loaded with pollen, haven't you? They're bringing in a lot today."

"You mean those bright balls sticking on their legs? Yes, I was going to ask you about them. Is that pollen?"

"Yes, that's pollen. They gather it from different flowers and pack it into their pollen baskets, an arrangement of hairs on the back legs, and bring it home."

In still another hive an unclipped queen was found. "Superseded," remarked Daddy Lowe, "that is, the bees raised a young queen and made way somehow with their old one. My record shows the other to have been clipped. And soon it will show this one clipped."

Deftly he picked up the royal lady by her wing, quickly putting the tip of the first finger of his left hand under her; and when the little feet grasped the finger, the thumb closed gently but tightly upon them, holding her fast, even after her wings were released. Then with the free right hand, he picked up his scissors and skillfully cut off the wings on one side. Anne let go her breath.

"That looks like a delicate operation," she said appreciatively, "and delicately done. I'd likely kill her."

"Hardly that, but you might injure her the first trial. Sometime you shall experiment with a drone. They're not so precious as queens."

"What a good idea! And now, Daddy Lowe, you've told me a lot and shown me more, and I am most grateful. But I know I'm bothering. So please go on and don't pay any more attention to me. I'll stay and watch, but I'll keep my questions till later. It'll mean a lot to me to see just how you do when you're not being interrupted."

Daddy Lowe took her at her word. Hive after hive he opened and looked thru, the girl sitting opposite him, watching closely but seldom speaking. Finally, however, she failed to follow, as he moved on to other hives. Quietly, veil turned back, she sat watching the bees drop in from their flights, heavy with their precious treasure brought from afar. Their rapturous humming moved her deeply. Some of them, she knew, were bringing in nectar, tho it was nowise to be seen. Others came careening under great burdensome balls of the gay dust of flowers. "I believe you're bringing home the rainbow," she said softly, "violet, indigo, blue, green, yellow, orange, red. No wonder you sing as you come."

"Daddy Lowe," she called presently, "I'm going over to the hill and watch the orchards bloom."

"Tell them for me you're a good watcher, and no trouble. Better take Shep along."

Anne laughed and called the dog. From the side of the hill Mr. Lowe's modest orchard stretched out to meet his wealthy neighbor's extensive one. Anne looked down on the April beauty as on Fairyland itself. All the thrill and youth of the spring was reflected in the eager face. But gradually the glow died away, and the young eyes grew sad.

"It's not like this over there," she thought, seeing the orchard thru a sudden blur. "It's April, but it isn't like this. Boys are dying. They are killing each other. Oh, Robert, my brother Robert, how about you?"

Then quite suddenly, a great sob broke thru, and Anne dropped in a little heap on the side of the hill and cried like a child. She was not given to crying, but she was very young and the world's tragedy and sadness overwhelmed her.

"Shep," she said gravely as she rose a little later, "please don't think I'm a cry baby. I'm going home to Mother Lowe. She's little and old and as frail as an apple blossom, but I believe she's stronger and braver than I. I can beat you to the mulberry tree, tho, and don't mind proving it. Come on!"

And with a smile resolutely shining thru the tears, she dashed home with Shep. Entering the yard, she saw Daddy Lowe talking with a young man whose face was turned away from her direction. Shep started over to investigate. Anne did not. "Theodore Robinson!" she gasped, and fled into the house.

"Mrs. Lowe!" she called, "where are you? I've come in to knit."

(To be Continued.)



BIG BEEKEEPING POSSIBILITIES

In the Extensive Region of the Upper Peninsula of Michigan

As a result of many inquiries received during the past two years I submit the following information which I gained thru a personal visit to the Upper Peninsula of Michigan during the summer of 1918.

Alsike clover grows in great abundance in all parts, whether wooded or cleared, excepting on the sand plains and some of the very rocky hills. Any one who has never seen alsike growing in Cloverland would hardly believe a statement of the prolificness and abundance of this very valuable honey plant. This is by far the most valuable source of nectar in Upper Michigan. Fireweed, or *epilobium*, grows in profusion in the districts where fire has burned off the other herbage within one or two years. This plant furnishes a heavy secretion which makes one of the finest of honeys, but it is not dependable. It becomes crowded out within a few years after a fire has covered the territory. Red raspberry grows in abundance on the uncultivated hardwood land. This plant furnishes a quite dependable source of nectar and is only second in importance to alsike clover. Basswood has been a common tree, but in most sections

it has been lumbered off until it is of small relative importance. There are, however, some locations where basswood forms one of the chief sources of nectar. It is not dependable from year to year, but furnishes a very heavy flow occasionally. Goldenrod grows principally on the heavy land, but is also found to a certain extent along the edges of the sand plains. In seasons when the temperature and moisture are favorable it is an important source of fall honey. Aster is scattered over most of the territory and, true to its characteristics in the North, yields a very late flow which is not usually ripened and which granulates in the comb. Other minor sources of nectar are wild cherry, dandelion, boneset, sweet clover, Canada thistle, hard and soft maples. Those plants which grow in the sun naturally yield nectar first, while those which grow in the shade furnish a later flow. The main honey flow begins about the last week in June and continues thru the blooming of red raspberry, alsike, and fireweed. This usually covers a period of about six weeks.

One peculiarity of the Upper Peninsula which appeals to most beekeepers is the absence of drought. The records of the weather bureau for years back show that rain falls with surprising consistency during the summer months. The daytime temperature during the period of nectar secretion is usu-



A typical apiary in the Northern Peninsula of Michigan, located at Iron Mountain, Dickinson County.

FROM THE FIELD OF EXPERIENCE

ally warm, but rarely hot. One can wear a light coat with comfort all thru the summer. The nights are usually cool and sometimes quite cold. For this reason the writer does not expect that this region will become famous in the production of comb honey. Light frosts are expected in some parts during each month of the summer. These frosts, however, are not usually so severe as to interfere with nectar secretion.

The soil on which the nectar-secreting flowers grow is chiefly clay, much of this being of a reddish color. The glaciers, which once covered this region, left numerous deposits of clay separated by plains of sand. The sand plains are of no value to the beekeeper. There are several ridges of high and rocky hills, and in this territory it is not believed that commercial honey production would be profitable. Most of the soil, however, lies in level or gently rolling areas.

The rural population is such as would naturally be found in a new country. Farm homes are generally few and scattered, as one recedes from the larger cities. Around the cities the population is as dense and the land as well tilled as in our older com-



Volunteer alfalfa on cut-over land.

in the loose snow to furnish oxygen for the needs of the bees. However, there comes an occasional winter when there is very little snow and when the temperature may go even to 35 below zero and then few bees survive. Judging from what could be learned from the beekeepers regarding their experience, the wintering of bees in a properly constructed cellar or in tenement packing cases brings results that are entirely satisfactory.

The roads between the various cities are generally good. There are hundreds of miles of the finest macadam and pavement. Within a very short time it will be possible to travel between all of the county-seat towns on some of the finest roads in America.

The markets for honey naturally are very good, as up to the present time not sufficient honey has been produced to satisfy local demands.

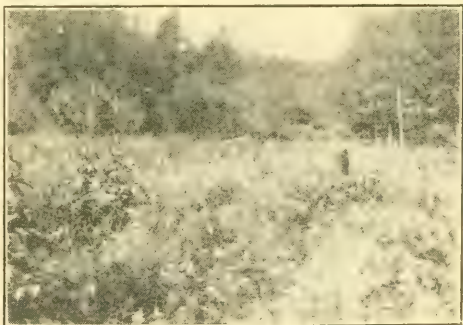
Anyone interested in this territory should write to the county agricultural agents whose addresses are as follows: For Chippewa County, County Agrl. Agent, Sault Ste. Marie, Mich.; for Luce County, County Agrl. Agent, Newberry, Mich.; for Dickenson County, County Agrl. Agent, Iron Mountain, Mich.; for Ontonagon County, County Agrl. Agent, Ontonagon, Mich.; for Houghton County, County Agrl. Agent, Houghton,



Beeyard located in a young Orchard in Chippewa County.

munities. The people have gone there not only from all parts of the United States, but a large proportion were born in foreign countries, including Norway, Sweden, Russia, Germany, and other parts of Europe. Good schools and churches are available and the people are in many ways more enterprising than in older communities.

Bees are wintered in the same manner as in southern Michigan. Some use single-wall hives and allow the bees to remain on their summer stands thruout the winter. Others use double-wall hives, some use special packing cases and some winter in the cellar. Bees winter more successfully without protection than they do in central and southern Michigan. This is because the snows come early before the ground has had an opportunity to freeze. One snow follows another until the hives may be buried under from four to eight feet of snow. There is sufficient air



Field of Fireweed.

FROM THE FIELD OF EXPERIENCE



Asilike clover and raspberry.

Mich.; for Menominee County, County Agrl. Agent, Menominee, Mich.; for Iron County, County Agrl. Agent, Crystal Falls, Mich.; for Gogebic County, County Agrl. Agent, Ironwood, Mich.; for Baraga County, County Agrl. Agent, L'Anse, Mich.; for Alger County, County Agrl. Agent, Munising, Mich. B. F. Kindig.

East Lansing, Mich.

[Our cover picture shows a typical scene in the Northern Peninsula before the timber has been cut off.—Editor.]



WHAT ONE MISTAKE DID

A Bee Escape That Didn't Work Well as a Bee Confiner—Then Trouble

"No, I'm disappointed in Kipling nowadays. He should have written a much better story about bees; and it's not particularly funny either!"

Thus spoke the writer after reading a short story by Kipling called "The Vortex," dealing with the terrorization of an English village by two angry swarms of bees which had broken out of their hives in an accident while being moved. This at ten o'clock in the morning just (as fate would have it) before beginning maneuvers with my own bees. It is now two o'clock, and the odor of witch hazel pervades the atmosphere.

I am an enthusiastic beekeeper of the gentler sex, and wish very much to take off a little surplus honey to eat and sell; so, all the big honey flows being over in this neighborhood till the fall flow from goldenrod and aster, I was inspired with the very brilliant idea of transporting a hive of bees to the edge of a large pond six miles away, which is surrounded with quantities of clethra—that fragrant blossoming shrub known by some as spice brush—which is now in full bloom. I thought that I, altho the owner of only six hives, could have my little experimentation on a small and modest scale. It was an experiment in very truth, but far from small and modest! Selecting

the hive, I put wire netting over all the entrance but a small place in which I stuck a Porter bee-escape, that the field bees might get back in their hive again. The bee-escape is an invaluable little invention made with two steel springs thru which the bees can get out but not crawl back again. In this instance I reversed it so that the bees could get into the hive but not come out. Then strong cleats were put on, to hold the hive-body and bottom-board together, and the cover nailed down. After all but a dozen field bees were in I put the hive in the back of my buggy and started off in a hurry to get my sister-in-law and take her to the train on my way to the pond. As I neared her house (a quarter of a mile away) I noticed some bees flying about the back of the buggy, but supposed they were some of the field bees which were persistently following their peripatetic home. When I stopped, quite a bevy surrounded us; and my sister, who was about to get in, waved her parasol frantically about, performed some odd gyrations, and dashed into the house.

"Hurry up and get in," I shouted. "They're all right, only hurry up. They're not stinging me, you see."

"Darn it," she answered, most profanely, "I don't care whether they're stinging you or not. They're stinging me."

I waited no longer, but, touching the horse, trotted down the road at a good swift pace, thinking to out-distance the pursuers; but, not at all. More and more came, and then came the stings. I looked back, and a stream of living javelins were issuing from the hive, burying their weapons in the back of my neck, and occasionally darting on to stab the horse's flanks or quarters. The Porter bee-escape had worked loose. What should I do? I could not stop and plug up the entrance; for when I slackened speed the attacking forces were overpowering. Many tales had I heard of plunging horses being stung to death by infuriated bees, and I wanted no such experience for the horse or myself either. Without stopping at all I leaned over and jerked a light carriage robe over the hive as well as I could. Tho not absolutely efficient it helped a good deal. On we raced, the bees tearing after—occasionally a muttered word and a vicious slap in the hair at the back of my neck, or a sting scraped from my wrist. At irregular but frequent intervals the horse would suddenly bound ahead at amazing spurts of speed. But ever, like evil demons, were those creatures behind and around us. I knew we must keep going or the horse would be stung to death. The Lord only knew how it would end, anyhow. We met an acquaintance who smiled and bowed pleasantly. There was no use of warning her, for the evil had been done; so I also bowed and smiled, and wondered how long she

FROM THE FIELD OF EXPERIENCE

would look and feel that way. Somehow I felt that if I could only get home the horse could be put under cover and I could "lie low" myself. At last I found a place to turn, in a neighbor's driveway. We galloped around the circle and finally headed home. Only ten minutes more of agony. Luckily a man was drinking water at the roadside pump in front of the stable. I screamed at him long before he could possibly hear me. Finally he heard, but seemed unusually slow of comprehension. But when we stopped he rushed up with a blanket to cover the now plunging horse, and I must admit I have never seen a horse unharnessed faster in my life. Into the stable we rushed, all three, closing the door and windows tight. Oh, what a blessed haven of refuge that dark stable seemed! Nerves had been stretched so tight that another instant with those "most marvelous and extraordinary little creatures" and the nerves would have snapped completely. Peeking out thru the stable window I saw what was to me now a most amusing series of moving pictures. First came the butcher's boy, feet on dasher, cigarette between teeth, jogging placidly along with an old and faithful horse; but on drawing even with the deserted buggy with its vicious load, what a transformation scene took place, my friends. From his mouth flew the cigarette, from the dasher his feet. For a moment hands were busy slapping and tearing the air; then old Dobbin felt the whip descend on his fat flanks as never before. In a cloud of dust and bees they disappeared. My little nephew coming up the road suddenly clapped his hand on his eye and ran for home, yelling lustily all the while. Then the men in the garden dropped their hoes and took to their heels, pulling out much hair on the way to the barn. Soon the place was deserted, and *Apis Mellifica* reigned supreme.

How I restored the bees to their original hearthstone without loss of life or anything more valuable than temper, which I do not in the least mean to underrate, would make another story.

But now as I sit, hand-glass in hand, gazing mournfully over my shoulder at the reflection of thirty-eight bee-stings on the back of my neck, I remark critically and with great decision, "That story of Kipling's is not so bad after all."

Josephine Morse.

South Lancaster, Mass.



IT WORKS VERY SATISFACTORILY

A New Way of Fastening Foundation in Frames
That Does the Business

During the past two seasons I have used a method of fastening foundation in brood- and extracting-frames that I think is very

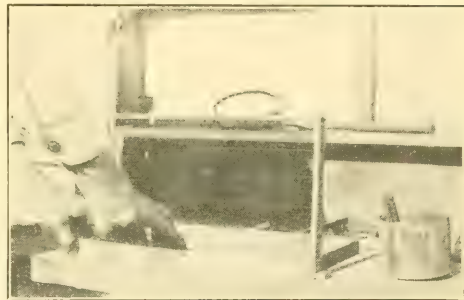


Fig. 1.—Stick the sheet of foundation to the top-bar by using the fingers.

much better than any other method in vogue. I like it so well that I think every beekeeper ought to know about it. It saves time and makes a better job than any wedge method whether driven in a groove or nailed. Also it eliminates the necessity of making any cuts or grooves in the top-bar of the frame, thus making it simpler to make and stronger and better to nail to.

Fig. 1 shows the first operation. I stand the frame up on the top-bar as shown and just back of it lies an imbedding board exactly the thickness of the top-bar of the frame. I lay a sheet of foundation on this board, then slide it towards me until it is

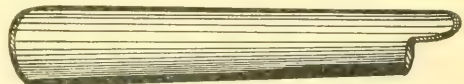


Fig. 2.—The rounded stick, notched at the end, used to rub the foundation fast to the top-bar.

just flush with the edge of the top-bar nearest me. Then I press it on to the wood with the tips of my fingers as shown. By using all the fingers of both hands for this work it is very quickly done. The foundation should be soft enough to stick to the wood when pressed firmly with the fingers.

It is now ready for the second operation, which is done with a specially shaped stick

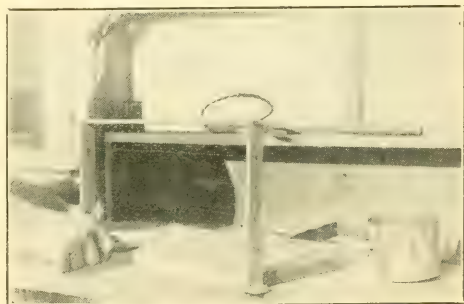


Fig. 3.—Showing the work of rubbing the foundation firmly onto the frame.

FROM THE FIELD OF EXPERIENCE

as shown in Fig. 3. The stick is made out of a piece of hardwood about five or six inches long and about three-fourths of an inch in diameter and looks like the drawing in Fig. 2. The notch in the end of the stick should be about one-fourth of an inch deep and as long as half the width of the top-bar you are using. This notch should also be polished smooth. The second operation consists simply in rubbing the foundation fast to the top-bar with the above-mentioned stick; and to keep the stick from sticking to the foundation I keep it in a small can of water standing near me, as shown in Fig. 1. When the foundation is soft enough to work well it can be rubbed on to the frame in this manner so firmly that it will never fall off. I have hauled several boxes of foundation thus fastened 20 miles over rough roads in a hard-riding truck with solid rear tires and never had a sheet fall.

After the foundation is fastened it is a simple matter to tip the frame over on the imbedding board and imbed it. Also, if you use a spur-wheel imbedder, the rubbing stick can be made on the handle of it, and you have the whole outfit in one tool. After a few trials you will find this method easily twice as fast as any wedge or waxing method and a far better job when done. Another advantage is that if an occasional sheet should come loose (which is very rare), it

can be easily refastened by rubbing it with your hive-tool.

I did not originate this method, but it was shown me by a beekeeper from Texas, and he claimed it was used considerably there.

Joseph H. Peterson.

Garland, Utah.

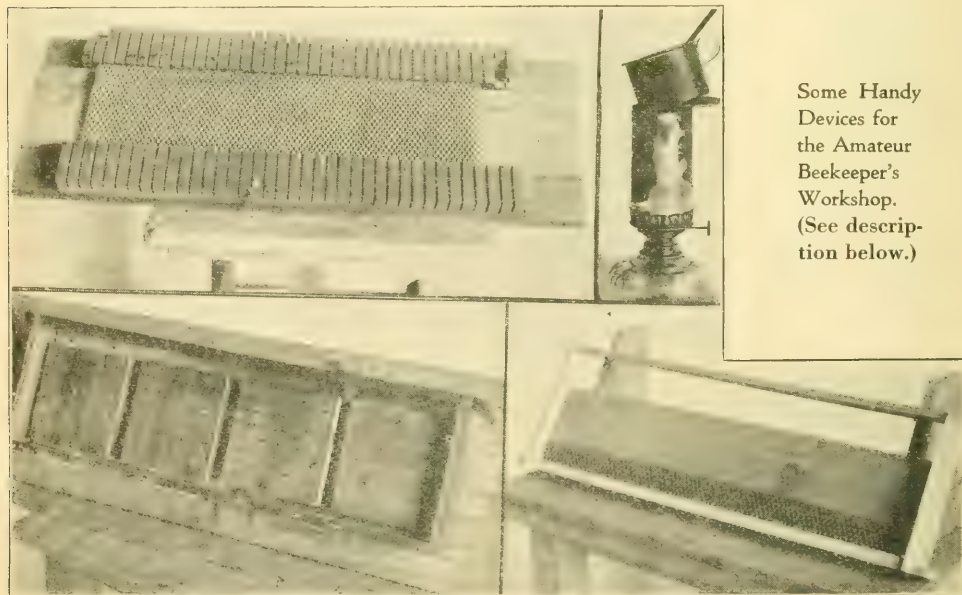


THE N. Y. STATE SHORT COURSE

The Kind of Instruction that is of Great Value to Commercial Beekeepers

I attended the commercial beekeepers' course held at Cornell University, Ithaca, N. Y., the last week in February, with the special object of getting, if possible, some information from Dr. E. F. Phillips concerning the "disappearing disease," in his discussion of "Diagnosis and Treatment of Bee Diseases." But I got nothing new. However, I stumbled—yes, stumbled—upon a course of lectures which well repaid me for my trip. In fact, I would not care to place a money value upon the information secured.

The line of talk given is on a higher level than any other bee-talks I ever heard. It went down to foundation truths, giving the result of carefully conducted experiments after carefully thought-out plans, which left



Some Handy
Devices for
the Amateur
Beekeeper's
Workshop.
(See descrip-
tion below.)

In the upper left-hand corner is the picture of a device for cutting super foundation for sections of any size. At the upper right-hand corner is a tin can with top and bottom removed and used as a chimney for an ordinary lamp and also for holding the cup in which wax is heated. The lower left-hand corner shows a device for putting foundation in four sections, with wax and brush. The remaining illustration is a rack for holding shallow frames when putting in foundation.

FROM THE FIELD OF EXPERIENCE

the doubter no ground upon which to stand. For instance, I found out that as long as a colony had enough empty cells in the combs to accommodate a cluster one could not give too much winter stores; and I had it brought home to me as never before that perhaps I have been too stingy about giving colonies plenty of stores to be turned by them into young bees. Again, they pretty well demonstrated that even I should pay more attention to requeening colonies; also that the 12-frame Langstroth hive is not too large for a young queen, but too small. Again, it was brought out very clearly that in the vast majority of cases a colony did not reach the peak of its strength when the surplus-honey flow started, but after—this being a loss in honey production.

G. S. Demuth gave valuable addresses right thru. Geo. H. Rea, who has been connected with the extension work at Washington, gave the best method of queen-rearing, on which those present took careful notes.

There were at least 137 students, among them extensive and well-known beekeepers. Ninety-three of them produced nearly 900,000 pounds of honey last year. This was compiled from records sent in without names so no one would be disposed to exaggerate.

C. P. Dadant, Hamilton, Ill., gave "The Dadant System" of honey production; and so convincing were his arguments for a deeper frame for the brood-chamber, and a larger brood-chamber, that the writer of this article, altho previously considering himself a large-brood-chamber beekeeper, felt that he had erred on the small side. Many others received the same impression; and should this educational work continue, as, in the interests of beekeeping, it is to be hoped it will, we may expect a breakaway to that system by men who want to reduce the cost of honey production.

The writer would strongly recommend to any one wanting up-to-date information in beekeeping not to hesitate to go hundreds of miles to attend such lectures.

R. F. Holtermann.

Brantford, Ont.

HIS START WITH BEES

Some Quite Lively Times Around This Amateur Beekeeper's Home

On Feb. 10, 1918, I went to a public sale, where they put up two stands of bees in homemade hives, but in fairly good condition. I had no more idea of buying them than I have of buying German war bonds; but a friend of mine said to me, "You have had everything from cows down to white mice; now why not buy the bees?"

I said to him: "Gee, Bill, they would sting me."

He said: "No, they won't. I had bees for five years till my wife made me get rid of them. You can make some money with them too, and I will show you how."

Well, I bought them, giving \$8.00 for the one stand, and took them home with me in a closed wagon. On the way the jolting of the wagon caused the bees to come out and look around. Bill put one on his hand and wanted to allow it to crawl on my hand; but there was absolutely nothing doing. Still, it put more confidence in me; and with a little coaching on his part everything went along lovely until in March when I placed them just next to my barn. One day, a little later, I was plowing, and stopped my horses near the stand; but, believe me, the bees made the horses move. One of them was covered with bees; a few stung me, but it did not swell any. Say—I got the horse into the barn and made straight for the grocery for a quart of gasoline. When I got back with it Bill said: "What are you going to do?"

"I am going to get rid of those bees," I answered, and added some very beautiful adjectives. Bill said, "Now just set that can down and listen to me."

I did so, and he said the whole trouble was my own fault in leaving the horses standing so close to the hive that they got to jerking and shaking their heads every time a bee went past, until the little bees thought the horses were after them, and they went to work to defend their home. Well, from that time on I had bees in my bonnet, bees in my clothes, and, in fact, all over me, yet I have not felt many stings.

Some time in June the bees swarmed, and I hived them all alone. I also bought a stand from a friend, caught a swarm, found a swarm, and my first colony threw off another swarm in July, which I hived. By this time I had been from one end of the hive to the other—knew all about different kinds of bees and queens, and became so much interested in them that my wife said I had bee-mare instead of nightmare. She claimed I took all of the drawers out of the dresser one night hunting for the queen.

This year I had an average of 60 pounds of honey from my five stands of bees, and a beeman said there was at least 75 or 80 pounds of honey in the brood-frames, because some of the hives were very heavy. I left all of my colonies outdoors all winter. I have a fence on the north, and I put a roof over the top of the colonies, so they would be protected all around. My wife was afraid of them at first, but now she goes right up to the hives. We eat on an average three pounds of honey a week, and are using it instead of sugar.

Many people try to discourage me in keeping bees; but after looking at the places in which they themselves kept bees,

FROM THE FIELD OF EXPERIENCE

and the hive they used, it is no wonder they think it unprofitable. Such dirty, unkempt hives, homemade hives, with any kind of top, and slats for a foundation! I really believe the bees died or abandoned these, simply from discouragement. Why shouldn't they?

H. R. Payne.

Springfield, O.



THE TWO-POUND PACKAGE

The Reason for and the Result of Long-distance Purchases of Bees

Having had a few years' experience in caring for bees, during which time I read considerable of the best literature on the subject, and being desirous of increasing the size of my apiary and its output and getting some valuable experience and firsthand information along a comparatively new line, I decided early in 1918 to order some bees from the South in combless packages. As the two-pound package was the smallest that seemed at all advisable, I decided to conduct my experiments with it.

The next question was when to have them shipped, and I studied my memorandum for 1917, which said that on Mar. 20 bees were working industriously on soft-maple buds along the river bottoms. By Apr. 15 they were busy on the cottonwood and a week later on the ash and box elder. Very soon after this apple, plum, and other fruits began to furnish pollen and nectar, so I decided to place my order for just as early shipment as the breeder could get them out, which promised to be near Apr. 15. I placed two small orders with Alabama men for shipment on Apr. 15 and one order with a Texas man, who promised to start the shipment about Apr. 20. One shipment of four two-pound packages with untested queens arrived from Alabama Apr. 22 and the bees were hived in 8-frame dovetailed hives, with six empty combs and two combs partly filled with honey. The cages were sprinkled with sugar syrup, opened, and placed in an empty super on top of the frames arranged for the bees to occupy. Some of the cages were soon emptied as the bees went down to the combs, while others had to be shaken or the queen found and put below with a cluster of bees, after which I shook out the remaining bees into the super and put on the cover.

Two of these four colonies were run for comb honey and two for extracted. One colony gave me 151 finished sections, which (figured at 25 cents a section—the price for which most of my honey was sold) were worth \$37.75. Deducting the cost (which was \$4.22½ per package, including express) the profit on this colony in seven months was \$33.52½, and there was left in the brood-chamber enough honey to winter them. This

must have been an excellent queen, for the next best record in the apiary was 130 finished sections, made by a colony wintered over. The second-package colony run for comb honey yielded 58 sections, which was considerably below the average for the apiary. However, the average for the two colonies, 104½ pounds, was above the average for the apiary.

My second order to an Alabama man for six packages was never filled, but after some correspondence the advertiser was prevailed upon to return the purchase price, which he did about midsummer. Had this man known that by accepting my order and holding my money, he was depriving me of an opportunity to place this money where I could have made it earn a clear hundred dollars in seven months, perhaps he would not have booked orders far beyond his capacity to fill.

But the man from Texas was all right. On Apr. 27 his shipment of 20 packages arrived and was hived as the others were. In just 10 days, on May 7, some of these queens had sealed brood in two frames—pretty good evidence that they got to work as soon as they struck the combs. One of these colonies was run for comb honey and yielded 87 finished sections worth \$21.75, from which, after deducting the purchase price which was \$3.43½, we have a net profit of \$18.31½, and stores for winter. I started two of these Texas colonies as comb-honey colonies, but one of them swarmed when the first super was about half-full and I put them back and gave them an extracting super.

No per-colony record was kept of those run for extracted honey; but the package bees did about as well as the other bees. I am sure that some of them surpassed some of the home-wintered colonies. Of the 24 packages one queen was superseded, and two of the others proved such poor queens that I replaced them with cells from good queens.

On the whole, I was well satisfied with both shipments. They came thru in good shape, were easily transferred from cage to hive, and were money-makers. I would like to get such packages by Apr. 1 if I could, but Apr. 15 is about as early as the Southern men will ship. If one has empty combs to have them on and one or two combs containing four or five pounds of honey, the bees, at that season and in this locality, will get plenty of pollen for brood-rearing.

R. R. Banta.

Oquawka, Ill.

[There is little question that these long-distance purchases may be made to pay well. From this article we infer that the brood-chambers were not contracted to the size of the cluster and that no brood was given the bees on their arrival. Had this been done, wouldn't the crop have been larger?—Ed.]

WHERE was your blue pencil, Mr. Editor, when you let "Our Food Page" get by you in March Gleanings? All that about picking fruit off the tree in winter (it was zero here March 1), grapefruit at 20 cents a dozen, and things like that to make our mouths water and to make us wish we were millionaires so we could mount a flying-machine for Florida. Have a heart, Mr. Editor, and look out what that Puerden woman gets in hereafter.

* * *

Not more than a quart of dead bees in the Medina cellar in the first month or so, but wait till the last month.

* * *

In one respect the National convention at Chicago was better than any other I ever attended—more women there. With two such women as Mrs. Allen and Miss Fowls, it just had to be a good convention.

* * *

"The extent of honey exportation can be judged in some degree by the fact that a firm in Medina, O., exported more than \$1,000,000 worth of honey to Belgium alone during the past year."—Los Angeles Times.

* * *

H. K. Hartman inquires about my 1918 crop, page 172. The season was a failure. The worst drouth ever known here dried up the clover, and the fall crop, which of late has been considerable, was lacking, cutting down the average to 36 pounds.

* * *

The objectors to large hives because they are too heavy to handle "should not overlook those weekly examinations that large hives (timely supported by supers and other essentials) permit to be entirely discarded," says D. Barone, page 172. Yes, the total pounds lifted may be less with large than with small hives. "But," replies the objector, "that hardly counts when I can't lift the big hive at all."

* * *

J. F. Parker uses staples on end-bars to prevent killing bees when handling frames, page 169. I tried that, and altho one can handle frames with such staples more rapidly without killing bees, I gave it up because the jarring of the staple on the hive-wall stirred up the bees too much when looking for a queen. For one with very unsteady nerves the staples may be advisable, but the average beekeeper can avoid killing bees without the staples.

* * *

White ants have been known in one or two cases to injure wooden hives when the hives were in direct contact with the ground, page 172, March Gleanings. I never

STRAY STRAWS

Dr. C. C. Miller

saw a white ant, but there is a big black ant here that's a dangerous customer for any one who hauls hives. I never knew of its disturbing the bees, but it

honeycombs the bottoms of the hives—and they needn't be on the ground either—so that when hauled they are jarred to pieces, altho without careful examination one would discover nothing wrong.

* * *

On page 175 George Kissam asks about "a bluish tint on the cappings of the stores." I suspect he refers not to the color of the cappings, but to something on the cappings. I don't remember seeing anything of the kind in late years, but formerly I sometimes found on the cappings of brood-combs in early spring a bluish-gray substance that was not ordinary mold but looked a little like it. I don't know what it was, but as it was on the cappings of sealed honey it was no evidence of insufficient stores. It was found in prosperous colonies, and didn't seem to do any harm.

* * *

Arle Pritchard gives some definite figures on page 167 as to naming the badness of cases of foul brood. Good for you, Arle; that helps. But wouldn't it be better to give the per cent of diseased cells instead of the number? Wouldn't 40 bad cells in a small colony be worse than 40 cells in a large colony? Still it's much easier to give the absolute number than the per cent. The editor says beekeepers will not agree as to what is bad or mild. That's just it. How can they agree so long as neither knows what the other is talking about? But if the views of inspectors and others were obtained, don't you believe we could settle upon some sort of standard? Certainly we never can agree upon what a bad case is so long as no one says just what he means by "a bad case."

* * *

That Medina cellar, page 137, interests me very much. The inside ceiling is 4 feet below the level of surrounding ground. Not many cellars like that, and it must be a good thing. I wish the bees might have had a longer winter in it. Mine were taken in Nov. 19, 17 days before the first of yours, and 37 days before the last. Being able to hold temperature between 44 and 50 is fine, but I wonder if the bees wouldn't like it a little warmer. Wait till I go down cellar * * *. It's 52 in my bee-cellar this 26th day of February at 11 a. m., and the bees quiet. Outdoors it is 16 above zero, and this morning it was 6 above. I think it has not been above 60 in the bee-cellar, nor below 40. But that 20 degrees of variation looks pretty crude beside your 6. Yet the bees will stand it all right if they have pure air,

and you seem to have that matter pretty well under your thumb. I wish you could measure the purity of the air, and then had an exact measure of the uneasiness of the bees at different grades of purity.

* * *

A. I. Root, when I read what you and Prof. Thorne have to say, page 182, there came to mind these fine lines from Pope's Essay on Man, which I here transcribe for you:

Heaven from all creatures hides the Book of Fate,
All but the page prescribed, their present state:
From brutes what men, from men what spirits
know;

Or who could suffer being here below?
The lamb thy riot dooms to bleed today.
Had he thy reason, would he skip and play?
Pleased to the last he crops the flowery food,
And licks the hand just raised to shed his blood.
Oh! blindness to the future! kindly given,
That each may fill the circle marked by heaven,
Who sees, with equal eye, as God of all,
A hero perish, or a sparrow fall.

* * *

That Byer-Crane controversy, page 157, may lead to some useful experimenting. Mr. Crane says he crammed hives with honey in October with bad results. But one important item in the case he doesn't tell us about. Please tell us, friend Crane, how much room there was for clustering **below the bottom-bars**. With little room there I should expect bad results; with plenty of room I should expect good wintering with not an empty cell in the combs at the start. I'll tell you why I think so. In the winter I have the beautiful sight of great clusters below the bottom-bars, reaching to the floor two inches below. How much deeper the cluster would be with more room I don't know. If the bees enjoy clustering below the bottom-bars when there is the usual room above, don't you believe they would like it with only honey above?

* * *

It is somewhat of a problem to prevent drifting when placing bees on their summer stands and at the same time keep the colonies warm enough. To avoid any trouble from bees flying back to their winter location, bees should be put on their summer stands quite early, say in March, before they have flown enough to mark fully their location where they have been thru the winter. Aside from that one difficulty, it will be better to leave them packed till soft maples are in bloom, or even till the middle of May; and this one can do by taking a little extra trouble in this way: When one has removed the bees from their winter quarters, let him put in their old place a hive with empty combs. The returning bees will assemble on these, and at evening can be brushed in front of any hive where they will do the most good, a repetition being necessary for a few days.

* * *

How many worker-cells in a Langstroth frame? The frame is 17½ by 9½ outside measure. If the thickness of the top-bar be

¾ inch, the bottom-bar ¼ inch, and each end-bar ¾ inch, then the inside measure is 16¾ by 8, or 135 square inches. If we count 25 cells to the square inch, as is often done, there will be 3,375 cells on one side, or 6,750 on both sides. But if there are 5 cells to the linear inch, there are 28 13/15 cells to the square inch, making 3,897 cells on one side, and 7,794 on both sides, this last being 1,044 more than when we count 25 cells to the square inch, a difference of a little more than 15 per cent.

But this is counting on perfect combs, and perfect combs are not the rule. The bees are likely to have a passage between comb and bottom-bar part way or the whole way of the bottom-bar, and often for some distance between comb and end-bar. Perhaps it may not be out of the way to count that the deficiencies will amount to as much as half an inch in depth for the length of the bottom-bar. That will give us for the average comb 3,653 worker-cells on one side; 3,650 is near enough, and that's easy to remember, for the first three figures at the left give the number of days in a year. For both sides the number will be 7,300.

* * *

R. H. Pettit, Entomologist of Michigan Experiment Station, has given out interesting results of experiments as to materials for winter packing, concluding that "ordinary leaves, raked up, dried, and firmly packed, give the best results of any material tried." He says: "From our tests it would appear that the heat-insulating values of the various substances compare about as follows: Dead-air space, 18; corrugated card-board, 33; planer shavings, 34½; mineral wool, 35½; forest leaves, 41."

From this we may figure out that if forest leaves are taken as the standard, or 100 per cent, we shall have the following: Forest leaves, 100; mineral wool, 86.6; planer shavings, 84.1; corrugated paper, 80.5; dead-air space, 43.9.

"Tests," says the report, "were also made to determine the relative rates of heat loss when one surface of the chamber was left unpacked. When the bottom surface was unprotected there was a loss of about 3½ degrees F. in temperature. One unprotected side produced a loss of 4 degrees. With the top surface alone unprotected, a loss of nearly 5 degrees resulted."

That shows that the top is the most important part to protect, and that to leave the bottom unprotected is nearly as bad as to leave one side bare. But these findings do not warrant the view (that I think has been held by some) that to have the top protected is more important than to protect the four sides, for the loss from an unprotected top is 5 degrees and from four unprotected sides it is 16 degrees.

[We rather question the conclusion as to relative loss of heat at top and sides as here stated. Would not the proportional loss be greater at the top than given above?—Editor.]

ALL in all, that is a most excellent article on "Taking Bees From Cellar," by Belva M. Demuth, page 143, March Gleanings, and no young beekeeper can go very far wrong by following the advice given. The idea of taking bees out in weather too cold for them to fly is rather new, but it is all right. I have practiced it more or less in recent years and find it works all right.

Those letters from California by Editor E. R. Root are most interesting.

That method of using cornstalks for wind-breaks, as given on page 151, seems practical and within the reach of most beekeepers. It is especially valuable when lumber is as expensive as at the present time.

I am not surprised at the criticisms, found on page 149, of J. F. Kight's method of treatment of incipient cases of American foul brood. It seems too much like playing with fire. Better not fool with it.

As in most parts of this country and Canada, the winter in this locality has been very mild, the thermometer registering zero on only a few mornings, with no severe storms. In February bees had a good fly in protected situations.

There, now, Mrs. Puerden, I am surprised that you should even feel like accusing good Mother Nature of partiality because she does not give us six months of strawberries here in the North. Why, we have an abundance thru June and early July. Then the season lets up a little that we may enjoy the delicious raspberries and blackberries. In August we may have strawberries again and continue to have them until they freeze up in November, if we plant the right varieties and care for them.

F. B. Paddock informs us, page 165, that his bees were gathering pollen from the elms on Jan. 29 in Texas, while we were looking up into the trees at the buds and hoping they would open by April 20. Surely, this is a great country. But if our bees can not gather pollen for a long time, I enjoy sitting with my feet to the fire like that "Back Lot Buzzer," page 169, and reading about the bees in other parts of the country where they are gathering pollen.

"European foul brood, together with unwise inspection, has decreased the number of colonies in one county in California nearly 50 per cent," says the Western Honeybee,

SIFTINGS

J. E. Crane

as quoted on page 170, and doubtless the statement is correct. The law is good and helpful, but more and more, I believe, inspectors are coming to

the conclusion that the time of an inspector is best spent in instructing those who are interested and willing to take pains with their bees. The greatest satisfaction that has come to me as an inspector has been in helping those that were willing to help themselves.

After all I have written about the folly of using shallow extracting-frames I find myself making up a lot this winter for use during another season, more for experimental purposes than any other reason. A friend who uses them says that they do not require wiring, and in looking over a lot he had used I could not see that they had sagged enough to do any harm—and he used light super foundation in them, too. Well, in nailing them up I found that while it required more of them to hold 100 pounds of honey than it would of full-depth Langstroth frames, it required no more lumber, as a $\frac{3}{8}$ -inch top-bar is ample to support the lighter comb. I also discovered that I could make enough of them to hold 100 pounds of honey as quickly as I could of Langstroth frames, for I am saved the trouble of wiring. Now, if it proves true, as some claim, that one can uncap 100 pounds of honey in shallow frames as fast as the same amount in full-depth frames, I am not sure but that those who advocate this style of frame will have the best of the argument.

Some advice given in October Gleanings page 587, in regard to taking off sections as soon as sealed over, has been given, I believe, many times during the last 40 years. It looks like good advice, and it is good advice in a general way, but—

Suppose I have a yard of 100 colonies that are filling their supers rapidly, if I were to follow this advice I should need to go over the yard inspecting the sections every day, if I am to remove them as soon as finished; for many will be found finished today that were unfinished yesterday. If one is keeping bees where the sections can not remain on the hive a few days after being finished without getting badly soiled, better take surplus honey with an extractor. We go over our yards, removing finished supers and sections once in eight or nine days. Another objection to this advice is that unless you have a super than can be condensed or reduced in size near the close of the season, one must fill the space of the sections removed with empty sections, and so have a large number of unfinished sections to carry over or melt up for wax.

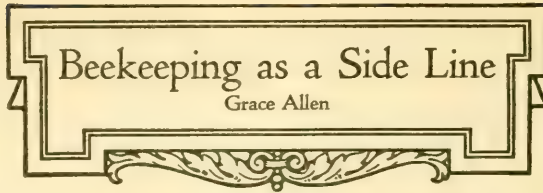
HERE in the pretty little town of Hinsdale, about 17 miles from Chicago, I have been sitting for 10 minutes gazing at a sheet of blank paper in a quiet typewriter, and nothing happens. Dare I try to write about the National convention? The Editor mightn't like it. The readers mightn't like it. The National mightn't like it. Maybe it doesn't belong to a side-line department, anyway. But I am so full of it, so soaked with it to the finger-tips, that nothing else will come out; and my paper, unless filled with comments on the National, threatens to remain tragically blank. So—may I, Mr. Editor?

The National Convention as Seen by a Side-liner.

Somehow I overlooked the fact of that Chicago and Northwestern meeting, and hurried from the train over to the Hotel LaSalle, thinking to plunge promptly tho tardily into the National, and soon I was listening in great delight to Prof. Francis Jaeger of St. Paul.

Any convention was the right one that could supply such a treat as that. He was recounting some of his experiences "over there." That I missed the first of it was my great misfortune; but I did hear about the brick house in Monastir, with its walled garden, and the beekeeper trying so hard to be progressive; the 40 long trunklike beehives with 27 Jumbo frames each; the homemade foundation $\frac{1}{4}$ inch thick, weighing a pound to the sheet; the extractor made from sheetiron from the battlefields; and the honey vinegar; and (soft pedal) the honey wine (yes, and he knows how to make stronger things, added the genial lecturer); and the story of Prof. Jaeger's own beekeeping experiences—how he bought (only the owner would take no pay) three of these long-idea hives from the walled garden, and drove into Monastir in a camouflaged auto, he and his companions in peasant dress, bringing out the bees right in the daytime, tho it made a most exciting trip under the falling shells; how he transferred the bees into some modern hives shipped from the A. I. Root Co.; and how they started promptly drawing out the new foundation.

This was in August. There had been no rain since May, and all the earth was bare and dead, and there was no green thing nor blooming thing for eight miles around, and the thermometer was 110 and 120; yet within three weeks there was capped honey in the hives—the famous Hymettus honey, Prof. Jaeger said. Yet never, for all his trappings and searchings, did he see a bee at work. Only thistles were blooming, and no bee paid them the honor of a visit. But round about were mountains, great mountains, some of them 9,000 feet high. Off to the



southeast even storied Olympus was visible. And every afternoon over these peaks the great clouds trailed, bearing their vapors for blessing. High on the mountain

sides was refreshment and greenness, and the aroma of wild thyme and flowers crushed underfoot where one walked. Below in the arid valleys, the bees touched not even honey itself left about the yard; but up, ever up and up, they soared; and when the rains finally came in October, behold the queens were honey-bound. Do you wonder we were fascinated with Prof. Jaeger's talk?

And the wealth of that Balkan region! Coal, oil, iron, quartz, gold, copper, lead, mineral springs, water power, timber—well, if ever a beekeeper mysteriously disappears—find out if he heard Prof. Jaeger at Chicago in 1919; if he did, page him in the Balkans.

But he did not stop there—he carried us, later, in the opening address of the National, into a state even further removed than the Balkans—a state of high development in the beekeeping industry—when beekeeping should be one of the chief branches of agriculture; when it should have taken such full advantage of the splendid scientific assistance so generously given by a learned and patient Bureau of Entomology that it should have developed worthily into a great industry. He called our attention to the cow, which, he asserted, has stepped quite out of zoology and become an industry. Entomology, he further asserted, deals with June bugs and cooties and bedbugs, and some 196,000 species, each one as bad as the other—except two, the silkworm and the honeybee. The silkworm has left entomology and become an industry, while the honeybee, alas, is still among the cooties!—where it belongs no more than canned beans belongs in botany or butter in zoology!

If you have never heard Prof. Jaeger speak, I do most heartily recommend your attendance upon the next gathering where he is to appear. Witty yet earnest, fluent, vigorous, dramatic—he is indeed a most pleasing and convincing speaker.

Then there was Mr. Kindig—also with a peninsula, the Upper Peninsula of Michigan. He told us all about it and its wonders, most enthusiastically. And how 117 nuclei shipped up there in the spring were increased to 204 full colonies, made ready for the winter, and yielded 11,000 pounds. If the adventurous beekeeper who disappears is not to be found in the Balkans, look for him in Mr. Kindig's Upper Peninsula. Or indeed, in North Ontario, recommended so enthusiastically by F. W. Krouse. Tons and tons from 300 colonies! I hope these things aren't secrets. If the Editor thinks

they are (or ought to be) he has his blue pencil. They were told in open meeting.

But let no one think the whole session was given over to rosy reports and alluring descriptions. Dr. Phillips was there. Definitely, clearly, concisely, he discussed "The Control of European Foul Brood." He outlined the three principal methods of control, all three principles being suitable for swarm control and equally applicable to European Foul Brood.

"How can I tell European from American?" some one asked. Whereupon the ever-courteous entomologist explained that if it resisted this treatment, properly applied, it is probably American. Moreover, the American ropes out 4 to 6 inches, in a fine thread, while the European ropes out only about 2 inches, coarsely, and then breaks—as a worn and weary rubber band breaks. And many many more questions he answered. In the fall see that bees have ample room, ample packing, ample stores—60 pounds, for instance. Do this in September. In spring see that brood-rearing starts with vigor and enthusiasm eight weeks before the opening of the honey flow. He further said, in a talk on "Factors Influencing Secretion of Nectar," that, contrary to general opinion, well-kept records show that the flow of nectar, instead of being immediately increased by rain, is decreased, not becoming normal again till the fourth day later; tho, without question, frequent rains tend to lengthen the period of secretion.

On Wednesday morning I realized in utter dismay that I had missed Miss Fowls' talk on "Pushing to the Front in Beekeeping." Imagine trying to make comments on a convention where you failed to hear one of your own Editors! It is downright embarrassing. But it was my misfortune that my sister's apartment is far out and that Miss Fowls was the first speaker of the morning. However I did hear her give a most comprehensive presentation of the symptoms, results, and seriousness of the disappearing disease. And I know that her main address was both forceful and impressive. And isn't it good to meet an interesting and successful young woman, with pleasing personality—whether she's your Editor or not?

W. H. Hall of the Bureau of Markets surprised us with the statement that this bureau has a leased wire system of 1,000 miles, the largest of any except that of the Associated Press. There is no reason why any honey-producer should be uninformed as to current market prices.

Prof. E. G. Baldwin, stressing the importance of extension work in beekeeping, repeated somebody's catchy and worth-while slogan, "Better keep bees better or better not keep bees." Prof. Eric Millen gave us some interesting glimpses of "Beekeeping as Seen by a Bee Inspector." Kenneth Hawkins gave a comprehensive survey of "Beekeeping in Dixie."

It was in the Wednesday morning meeting, as it neared the noon, that Dr. Phillips

interrupted a lively discussion by announcing "We have with us this morning the greatest beekeeper in the world, and we all want to hear from him." That meant the great moment of the convention had come. How can I tell you the thrill of it? To the sound of ringing applause Dr. C. C. Miller rose. "And all that sat in the council, looking steadfastly on him, saw his face as it had been the face of an angel." Not that only, but of a man also who has lived greatly and worked greatly, in the spirit of the greatness of simplicity and kindness. This was all in his face, where there was also wisdom and wit and years and youth and infinite friendliness. And the first words of the greatest beekeeper in the world, spoken in his strong gentle voice, with his wonderful smile, were "I wish I knew something to tell you that no one else knew!" And down in the back of the room there was a certain side-liner so deeply stirred by the sight and sound of him that she can scarcely recall one other word he said!

We were very glad that Mrs. Miller and Miss Wilson accompanied him, not only because they were Mrs. Miller and Miss Wilson, but because it is always a pleasure to meet gentlewomen.

And then, last but by no means least, came the matter of organization and reorganization. Addresses or papers on different phases of this subject had been ably presented by Colin P. Campbell, Grand Rapids, Mich.; Chas. B. Justice, Los Angeles, Cal.; and Prof. H. F. Wilson, Madison, Wisc. And there were speeches and committees, majority reports and minority reports, motions to adopt things and motions to table things, objections, personal privilege, points of order, roll-call voting, and over it all Mr. Kindig calmly presiding, flanked by the capable secretary, Floyd Markham of Ypsilanti. When it was all over we were committed to the policy of re-organization (for the 15th time, said those who had attended that many conventions!), the fate of the National to be decided next January. Then officers were elected. They demurred, one after the other, but yielded gracefully at last—and it looks like a good, strong executive committee: Mr. Kindig, president; Miss Sly, vice-president; and Mr. Justice, secretary-treasurer.

Then the Convention adjourned, sine die, pronounce it as you please. Yet it was not at an end. Many lingered for a delightful exchange of experience and a closer personal acquaintance that added greatly to the deep pleasures to be stored away in our memories. And indeed, is there really ever an end to such things as conventions, the coming together of people with common interests? It seems to me there is something in the human heart that will not let them end. The good will, quietly deathless, lives on in our inmost lives, while the inspiration and the quickened zeal—who can measure them or set them a bound or say, "Lo, here they end"?



FROM NORTH, EAST, WEST AND SOUTH



In Northern California.—The rainfall during February brought the average for the season up to March 1 to nearly normal. During the first two weeks the almond bloom was scarcely visited by bees owing to cold, rainy, and windy weather. Other deciduous fruit bloom is now (March 5) opening up, and it is hoped by both beemen and fruitmen alike that a week or more of warm weather will prevail. Up to the beginning of March the consumption of stores was above normal and numerous beekeepers have been compelled to feed. The writer believes that if beekeepers would pay more attention to windbreaks about their yards they would be very agreeably surprised in the matter of honey consumption during the winter and spring periods. Aside from the increased consumption of stores the condition of colonies is normal. Breeding is active and some American foul brood has been detected, but as yet no cases of European have been reported.

The question as to whether or not the California beekeeper should purchase part or all of his queens or raise part or all of his queens, is an important one. Your correspondent believes that no beekeeper should attempt to rear queens and expect to profit thereby, unless he has become thoroughly familiar with bee behavior. It is a comparatively easy matter to raise queens, and in large quantities too, but to raise the right kind of queens requires an expert knowledge of the habits of bees and a great deal of painstaking work. It is a notable exception to find a man with only two or three years' experience in handling bees able to raise good queens, but the large honey-producer that wishes to make the most out of his business should understand how to raise his own stock. We cannot do without professional queen-breeders and must always have them, for all beekeepers must get their pure stock from some source. Nor must it be taken for granted that when once pure stock is obtained that it is unnecessary to renew such stock from time to time. The large producer with hundreds of colonies has an excellent opportunity, provided he keeps proper records, to select his breeding stock. His selection must be a pure selection—we will say a leather-colored queen—and daughters raised from such a queen need not necessarily be purely mated. As a matter of fact, some unpublished experiments by the writer have shown conclusively that the first generation of hybrids are better honey-producers than either pure yellow or pure black stock. This fact only holds true for the first cross as the second and third crosses result in very inferior honey-gatherers.

During the first session of our legislature no less than four bee bills were introduced. These bills were variously commented upon

by beekeepers thruout the State. Altho they all possessed some good points they had nevertheless undesirable features as well, and at a recent meeting of the Board of Directors of the California Honey Producers' Co-operative Exchange a resolution was adopted to the effect that the Board could not recommend the passage of any of the proposed bills. M. C. Richter.

Modesto, Calif.

* * *

In Southern California.—Altho rainfall to this date, March 4, has not been as much as we had hoped for, yet plants are looking well. The eucalyptus has not bloomed nearly so profusely nor furnished nectar so abundantly as last year, probably on account of the cold weather. This winter has been much colder than last winter—in fact, much colder than for several years.

Our neighboring county, San Bernardino, has again changed inspectors and the affairs of the office are now looked after by B. H. Stanley of Rialto, a beekeeper of much experience.

Unfortunately it has once more been necessary to impress upon a migratory beekeeper the importance of notifying the inspector when moving bees into California. A large apiary was moved into Riverside County and no notice given. The result was that the owner was arrested and fined. This is a good law.

One of the matters of vital importance to the beekeepers of the West in general, and to southern California in particular, is the selling of the 1919 crop. We shall be afforded the opportunity of marketing thru various agencies. The State Beekeepers' Co-operative Exchange will likely handle by far the largest percentage of the products. The Southern California Beekeepers' Association will take care of the crop of its members. The beekeepers who are not members of any association will sell their honey on the market or will sell to commission men or brokers. All work hard for what they get and want to get all possible. While at present beekeepers' organizations may not get any more for a crop than the man outside gets for his, prices will be made stable. Such conditions as have existed in the past when one man has contracted early in the season for 5½ cents, while his neighbor who held his crop until midsummer got 13 cents per pound, will be done away with.

April in our locality calls for a close watch on the bees and also for much manipulation in order to get the best results. Any colonies short of stores should be very carefully looked after and fed enough so that the old bees will not find it necessary to go out of the hive in the cold weather to find food. A colony at all weak or one short of stores will need all of the bees it has to



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keep the brood warm. The queen at this season will produce all of the brood that the bees can possibly cover; and, if many of the old bees are lost before plenty of young bees are hatched, the colony may be lost. The writer has seen hundreds of colonies, with several frames of brood in all stages of development and with a good queen, have only a handful of bees left. This, to me, came as near representing "spring dwindling" (as written of by our Eastern friends) as anything I have ever seen. With some colonies strong in bees as one finds in most apiaries at this time of the year, you can select a few combs containing plenty of young and hatching bees. Shake the adhering bees in front of the weak colonies, being sure that you do not get the queen with them. The old bees will return to their own hives, while the young ones will enter the home of the weak colony and be received without trouble. As the hives become filled with bees and brood, it will be wise to put on supers well ahead of the probable honey flow. To arrange your manipulation so that the supers will go on just as the surplus honey flow starts is, of course, the ideal way. But to have all of the colonies with supers on a week ahead of time is far better than to have the hives overcrowded and not get the surplus room until several days after the flow starts. If one uses excluders there is all the more necessity for early supering, as the bees will not always remove the honey crowded around the brood. Then, too, as the queen cannot get above, swarming will be much more likely to get the attention of the beekeeper.

The Riverside County Beekeepers' Club held its annual meeting on Feb. 22, at the county court house, Riverside. It was unanimously voted to instruct the secretary to write to our representatives at Sacramento asking them not to support the beekeeper bills now in the legislature. The new laws would place the industry under the Department of Agriculture and would have a state apiarist appointed. All county work would be under the Horticultural Commissioner. Any one engaging in the business would pay an annual license fee of 10 cents per colony. No bees could be moved at any time without first giving 10 days' notice to the Horticultural Commissioner. We do not feel that any improvement would be made by such drastic changes as proposed by Mr. Lindley in these bills. The following officers were elected for the ensuing year: R. Powell, president; Chas. Hinzle, vice-president; Lester Bamberger, secretary. Mr. Horne, who has served the club so successfully for several years, found it necessary to give up the work of secretary, owing to his time being so taken up with his duties as secretary-manager of the Orange Belt Co-opera-

tive Honey Producers' Exchange and with the management of his beekeeping interests. Corona, Calif. L. L. Andrews.



In Ontario.—Weather has continued milder than usual right up to March 7, and it looks as if the present winter will be one to remember for its mild weather. Yet a peculiar feature, so far as beekeepers are concerned, is that we have not had a day warm enough for a thoro flight since last fall. This applies to local conditions, as they have no doubt fared differently in southwest Ontario. Wherever bees have had an abundance of good stores they appear to be in good shape, provided they were of fair strength last fall. Unfortunately, many are reporting bees short of stores, and we have to confess that some of our own bees are in that condition. Bees in the smaller hives that had little honey last fall and thus had to be fed, are the best off at present, as with well-filled brood-nests there was little room for breeding and a consequent using up of stores. Our larger hives that had natural stores, and, owing to sugar shortage, were not fed sugar syrup, are in many cases very short of food; in fact, some are about out and have to be fed—a nice condition surely for bees to be in by the middle of March. I have had colonies get short of stores in April now and then, but never before at this season. My judgment was either very faulty when passing them last fall or else consumption of stores has been abnormal where bees had too much room to rear brood out of season. Mr. Kindig, in the March issue of *Gleanings*, advises in case of shortage of stores to feed "hard candy or loaf sugar." Of course, candy answers all right, but I have my doubts about the loaf sugar, altho I have seen it recommended previously. I have been trying a few pounds on a few colonies, and when they are forced to take it, I find the bulk of it being thrown out at entrances in granules. Has any one really fed loaf sugar with success? Reports would be interesting.

Last week I was in Toronto, and a casual inquiry here and there showed that honey is much easier than a few weeks ago. Not that it is selling much lower in a retail way, but wholesalers are playing a waiting game and do not care to load up at any price.

Combless packages of bees are now admitted to the mails of Canada on similar terms and restrictions as to form of package, etc., as are in force in the United States. I understand that arrangements have been made with the customs so that clearance will be made at the customs' port nearest consignee and the packages forwarded to the consignee's postoffice direct. But I have had nothing definite on this



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point. This will, if granted, be a very important concession, as delays in customs have been one of the worst nuisances connected with the pound-package business, especially when bees have come a long distance and have been on the road a long time.

With practically no snow all winter and none at this date (March 7), naturally we have been much interested in the clover situation. In many localities, including our own, alsike is the main source of nectar. The clover is alive yet, for altho we have had no snow to cover it, on the other hand we have had no very severely cold weather, nor alternate freezing and thawing to heave it out of the ground. The critical time is ahead, and the next few weeks will tell the tale. But the clover was well rooted and had a fair top last fall. J. L. Byer.

Markham, Ont.

* * *

In Minnesota.—This State has experienced the mildest winter in 25 years. In spite of this fact we are receiving reports which indicate that in some localities, at least, bees are not wintering well. This is no doubt largely due to the fact that honey was of a poor quality for wintering, and many did not feed sugar on account of the high price and the difficulty in procuring it. Reports show that sugarfed bees are wintering better.

By the time this number reaches the beekeepers most of the bees in Minnesota will have been taken from the cellars. Did you save those combs of honey to give the needy colonies this spring? If you did, now is the time to use them. Place under the brood-chamber, next to the bottom-board, a hive body containing combs with more or less honey in them according to the needs of the colony. This leaves the colony in the warm part of the hive with the cover sealed. About the time of fruit bloom or later, when the upper division is getting well filled with brood, you can reverse the divisions, and, if the queen is a good one, all you will lack is a honey flow to give you a good crop of honey. Oh! you haven't the combs of honey. Well, in that case feed sugar syrup and sufficient at one time to carry the colony thru to the honey flow. I feel that this should be emphasized. Stimulative feeding may be all right for the experienced beekeeper after settled warm weather has set in, but let the beginner beware.

No doubt many colonies will come out of the cellar this spring in a weak condition. Many of these can be saved by the exercise of a little care and trouble. The writer has used the Alexander plan with good success. As soon as the weak colony has some uncapped brood in the hive, place it on a strong colony with a queen-excluder between. This should be done without the use of smoke. After placing the excluder on the strong

colony leave it uncovered for an hour or more until the bees have quieted down. Then quietly lift the weak colony from its bottom-board and place it on the strong one. In about 30 days these can be separated by setting the strongest colony on another stand and at the same time giving it some of the bees from the colony left on the old stand to make up for the loss of bees that will leave and return to the old location.

Professor Jaeger is planning to raise queens for Minnesota beekeepers the coming season as usual. The queen-rearing apiary will be in a new and better locality. All inquiries concerning queens should be sent to the Bee Culture Division, University Farm, St. Paul. Chas. D. Blaker.

Minneapolis, Minn. * * *

In Texas.—Reports from practically every section indicate that the native honey plants are now in excellent condition. A late frost is yet possible, altho recent cold spells lead one to believe that a killing frost may be escaped. In every section the bees are building up rapidly, and a big increase is expected to replace partly the severe losses of the past two years. Much increase will be made this year in bees at a possible sacrifice of honey surplus. Therefore, the improved conditions will not react so much upon the honey market as might be supposed on first consideration. Every professional beekeeper will replenish his stock during the coming year in preference to producing a large surplus of honey.

The excellent brood-rearing during the first part of March made inspection work possible and necessary in several counties. There is an increased demand for inspection work each year. The shippers of early queens were very anxious to have their certificates to accompany their first orders.

The cost of bee supplies seems to be increasing without much evidence of relief in sight. Many, last year, withheld much-needed orders for equipment, considering the price prohibitive and thinking that conditions would be better this year. However, the increased value of bees and all their products is supposed to make up for this increased cost of supplies. Transferring should not be neglected because new equipment seems so high. The increased returns of the transferred colony will certainly pay for the equipment. The high cost of supplies has not kept all beekeepers from buying, since every supply house is running to full capacity to fill all orders.

Those who were interested in the bill establishing the experimental apiaries will be glad to know that it received favorable support of the agricultural committees of both branches of the Legislature. Many beekeepers in the State have interested themselves in securing the passage of this bill, and



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such effort has already given visible results.

In this locality the month of April is very important for the beginner in beekeeping. Any transferring that may be necessary should certainly be done in this month. It is not hard and the cost of supplies need not interfere. If a new queen is needed in a hive or two, the introducing may be successfully done if the directions on the mailing cage are complied with. The beginner should be especially careful to detect the presence of disease. Give the very best of attention to a few colonies rather than neglect many. It is not wise to attempt too big things on the start. Attention to a few colonies may show in some colony a food shortage which it is easy to remedy. A little food at the right time will give big returns. The question of producing extracted or bulk comb honey confronts every beginner. Comb is expensive for the bee, but extracting equipment is costly for the beekeeper. A personal choice must decide the question. Every beekeeper should be thoroughly familiar with the sources of pollen and nectar in his locality. The exact management of bees depends upon a knowledge of the bee-pasture available and the time that it is available. The beginner should not expect to be successful with bees unless the problem is given thought. Bee literature should be carefully read. The real satisfaction of beekeeping is the information gained by the study and observation necessary.

College Station, Tex. F. B. Paddock.

* * *

In Florida.—At this writing a little orange bloom is opening, but it will be a week or more before the blooming becomes general. Some new honey is already being stored in the supers, but this is mostly from the andromeda, a clear honey that will not hurt either the flavor or color of the orange. The prospect for a big crop from orange is more than excellent, for our bees are in splendid condition, practically all colonies being strong enough to crowd a two-story hive. The crop will be made by the time this appears, and the beekeepers will be studying prices and busily extracting. What price we should accept for our honey, considering market conditions, seems a difficult question. Many producers are talking 24 cents f. o. b. shipping point; but, unless the demand increases, it seems probable that we shall have to be satisfied with a smaller price. We must take into consideration the change in conditions since a year ago. Export trade made the price then; for the European countries, especially Great Britain, were buying enormous quantities of honey for war purposes. They were buying from this country because of its geographical situation—a short haul and consequent saving of shipping—and not because they could not buy more cheaply

elsewhere. Australia, awaiting shipping space, has a four years' honey crop, estimated at from 4,000 to 20,000 tons; and I have reliable information from British shipping interests that shipping will now be afforded Australia to move her crops. Other out-of-the-way countries have also accumulated crops, and some large stocks are being held by speculators in this country. Until conditions adjust themselves it would be well to cultivate again our home market, tho not necessarily at a reduced price. We honey-producers are paying exorbitant prices for everything we buy, and we shall be doing ourselves an injustice if we again revert to low prices for our honey, and especially for our orange honey. If we can get 24 cents for it we must do so; and certainly we should not sell for less than 20 cents, for the price of honey will surely drop sooner than, and out of all proportion to, that of other foodstuffs.

The question of how to pack our honey for shipment arises at this time. Cans are difficult to obtain, and cost too much anyhow. Most of us will use barrels; but what kind of barrels carries best. Is the 50-gallon oak better than the 35-gallon cypress? The A. I. Root Co. bought so much honey in Florida last year that they can tell us which gave best satisfaction. Mr. Selser seems to favor the cypress barrel of 35-gallon capacity. Last year I received many inquiries for the address of a barrel factory. You can buy good cypress barrels from The Cannon Co., Cairo, Ga., at \$2.25 for 35-gallon size and \$2.15 for the 30-gallon size.

Some beginners have taken offense at my remarks in February Gleanings. I must remind those who happen to be hit that nothing in my writings is intended personally; but when a condition prevails I must mention it, even tho it may touch a tender spot in some of my friends. I must say that nothing I have written has brought so many words of appreciation from the big beekeepers as my remarks in February Gleanings. During this month beginners in Florida should watch their bees closely. The crop of orange honey is in the hives and care should be taken not to rob them too closely; for, in this locality at least, there will be no more honey coming in before about May 10, and enough must be left to keep the bees in a prosperous condition until the palmetto and gallberry open. It is good policy to leave at least 20 pounds over and above what may be in the brood-chamber. Also, those last swarms should be watched, for they are likely to run short of stores and then swarm out. All colonies that swarmed and also the swarms should be examined frequently until proved to have mated their new queens. When there is any doubt a frame containing eggs and young larvæ should be given immediately.

Apopka, Fla.

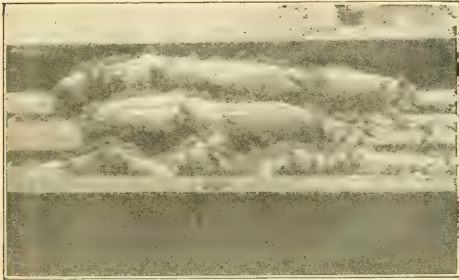
Harry Hewitt.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Bees That Built Comb Upward.

Regarding bees building comb upwards, page 667, November

Gleanings, let me say that last year there were many instances of this in the apiary where I was working. We had a very heavy honey flow which came on suddenly. In one case an empty shallow super had been left on a 10-frame Langstroth brood-chamber by mistake. The bees filled up a great deal of the space by building comb upwards. As far as I can remember, it was not built in circles as Dr. Miller says his was, but connecting combs were built from one to another, in some cases, almost at right angles.



Comb built upwards from top-bars.

I was anxious to obtain a photo, but the rush of work was too great to allow me time. I did, however, later on get a picture of comb built upwards in a nucleus with deep lid and no quilt, which I enclose. You will see that in one place the comb is broken. This was where the bees attached it to the roof when they got up to it, but I know it was built up gradually until the roof was reached, and was not built down. I have also known many cases of foundation being drawn out at the bottom before the top.

B. Blackburn.

New South Wales, Australia.

Not Always the Queen's Fault.

I have noticed at times, in Gleanings, statements and remarks in regard to poor queens, one recently going so far as to classify the lady of the Queendom to that of a "Hun." I am sorry to say that I can not agree with this comparison, no matter how poor or poverty-stricken she may be in her little colony.

But what I started out to ask was: How poor is a poor queen, or, in other words, when is a poor queen poor?

Isn't it a fact that, as a rule, a queen whose colony shows up poor in the spring, is just simply demoralized from some reason or other? Isn't this reason a lack of bees or stores, caused by faulty wintering, perhaps too much room for the size of the colony, or stores remote from the brood-nest, or a hundred and one things, which might

bring about the loss of her subjects, whereby she is judged? While it is true that a queen of this description will remain poverty-stricken thruout the season, barely building up the colony in fair shape for the following winter; yet, on the other hand, a brood-nest of hatching brood placed on top of this same queen's colony will cause her hive shortly to become a rouser, ending the season second to none, a veritable top-notcher. I am inclined to think there is a reason for indifferent queens and colonies, and believe the remedy could be found in better beekeeping. Out of seven nuclei set off last season and gradually filled out with brood and full sheets, five are in fine shape for winter. Over each of the latter, when the foundation was drawn out, I set a shallow super of stores and brood merely to get them out of the way for the time. The other two nuclei gradually dwindled, were robbed out, and disappeared. From this experience it seems to me that stores with sufficient helpers would be the panacea for many of the so-called poor queens.

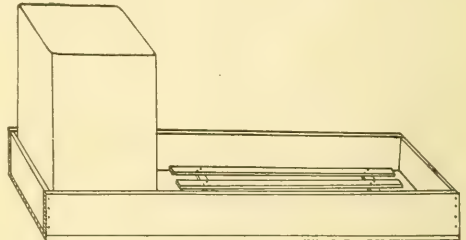
Cincinnati, O.

John E. Roebling.

A Practical Open-air Feeder.

As I have never seen anything similar described in Gleanings, I offer a description of an open-air feeder used by Wesley Foster of Boulder, Colo., when feeding thin sugar syrup in the spring for stimulative purposes.

A flat-bottomed trough is made by nailing a 3½-inch rim, made of 1-inch boards, around a board 10 inches wide and 3 feet long. A float is made by spacing five pieces of lath, each 24 inches long, an equal distance apart, so that when they are cleated



Will feed a whole apiary in a few minutes.

together the float will easily slip lengthwise in one end of the trough. A small piece of ¾-inch board is nailed to the bottom piece at one end to support one edge of a 60-pound can. When ready for use, the can is filled with sugar syrup of the desired consistency and, after removing the cap, inverted and set in the end of the trough so that the edge of the can opposite the opening rests on the cleat. The end of the feeder that contains the float should be slightly the lower. The float prevents the bees from drowning and

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One of Wesley Foster's out-on-the-prairie apiaries gives them a large surface to work upon. When these feeders are used, one is able to feed a large yard in a few minutes.
Jennings, Kan. M. L. Dodson.

"Important,
if True."

For placing diluted royal jelly in queen-cups, and for transferring larvæ, try a medicine-dropper with large bulb, and with tube just large enough to fit into the worker-cells.

Slater, Ia.

Carl A. Anderson.

[I don't know whether this plan will work or not. If it will, it will be a mighty good thing.—Mel Pritchard.]

**Big Hives a
Big Success.**

I have done some experimenting with large hives just for my own satisfaction. I started my beekeeping career with 8-frame hives and later changed to the 10-frame hives, and last spring built several hives holding 12 frames. I have proved to my own satisfaction that the large hive is the right thing for this locality. My business calls me away from



The hive at the left was 12-frame. The colony in it not only showed no desire to swarm but produced 250 pounds of surplus honey.

home a large part of the time, and when using the small hive I had a whole lot of trouble from bees swarming, which occurred almost always when I was busiest. Last spring I transferred several swarms to the large hives, and during the season not one of the swarms showed any desire to swarm. One of the colonies in a large hive produced 250 pounds of extracted honey, besides three full-depth 10-frame supers that I have stored away for feeding in the spring, if I find it necessary.

H. J. Quereau.

Baldwinsville, N. Y.

**Water Supply
for Bees.**

The picture shows a New Mexico apiary of 200 colonies in the background and an ordinary barrel filled with water. The barrel has a 1¼-inch hole about 1 inch above the bottom, in which a



A water-supply device for bees used in New Mexico.

tin pipe about 6 inches long has been inserted, the end being soldered tight (a cork may be used for the same purpose). On the upper side, about an inch from the end, a very small hole is punctured, thru which the water, due to its own pressure, shoots upward, insuring a continuous flow. A thin board is leaned over the pipe to break the force of the water, the lower edge of which is placed on small scraps of boards lying on the ground. Thus all these boards are kept wet, which assures all the bees in the apiary a steady supply of water without the least danger of drowning any. The vent hole in the pipe should be on top so that sediment in the water may not stop it up. The top of the barrel must be covered so that the bees may not get to the water from the top. A piece of burlap makes a good cover for this purpose. Also, it is advisable to set the barrel in the shade. The flow of

HEADS OF GRAIN FROM DIFFERENT FIELDS

the water may be regulated by the size of the hole in the pipe, but in no case should it be larger than a pin head. A 25-gallon barrel usually holds about four or five days' supply of water.

A. L. Heffinger.

Lakewood, O.

Easy Way to Enlarge Brood-chamber.

When Father Langstroth made his epoch-making discoveries, and produced the movable-frame hive, he knew presumably nothing of extracted honey as we know it. Consequently, all that he did and all that others have done until very recent years, was suggested and adapted solely for the getting of the largest possible yield of comb honey. To this end, probably the most important among the conditions necessary was the crowding of the colony to force work in the super. Hence the eight-frame hive and the long and comparatively shallow frame.

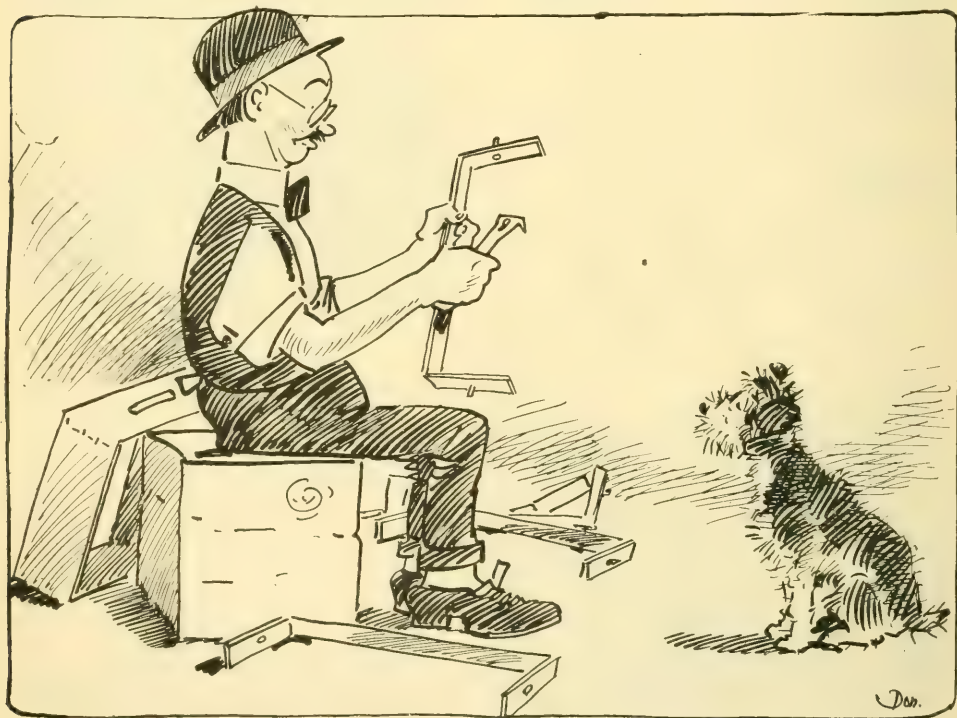
Now that extracted honey has come into its own, different conditions are required—the all-important condition now being large colonies. Therefore, more brood-room.

The only way to increase brood-chamber capacity, barring a second brood-chamber,

is by deepening the frame. This has an advantage in that it brings the form of the brood-chamber more into harmony with bee habit; also it avoids any additional parts to be handled. Very fortunately the "Jumbo" frame, already used to some extent, offers this increased depth, and any standard "L" hive can be adapted to the "Jumbo" frame simply by the addition of a rim $2\frac{1}{8}$ inches deep to the under edge of the hive body. This rim may be attached permanently or be removable, so that any hive body thus deepened may be restored to its original condition without any damage. When such a change is made the old combs of the Langstroth depth can be utilized as storage combs in ordinary full-depth bodies as supers. Such rims should have a wire nail driven into the edge of each side, the head to be cut off and the nail filed to a point. When placed in position and pressed home the rim cannot jig about, and the bees will glue it tight, especially if the inner edges are taken off the least bit to provide a "chink" for propolis. It will be seen at once that no discarding of equipment is necessary, as everything fits as before.

New Jersey.

C. D. Cheney.



THE BACK LOT BUZZER.

Ever since it was learned that Uncle Ez Peachbloom knew how to make spirits out of honey, he has been getting a powerful lot of mail. They can pester all they want to, says Uncle Ez, but by ginger, th' secret dies with me.

"COMPARE the monkey with the bee. The bee has personality. It has an object in life. The monkey is a scatterbrain, because he has only himself to think about."—Monthly Bulletin of the Chamber of Commerce of Hoboken, N. J., Sept. 1918.

"I should like to try wintering with frames crosswise of the hive. It sounds reasonable, and I will try it out."—D. G. Holtermann, Brantford, Ont., Canada.

"Have had two colonies in our back yard for the last five years and never a summer swarm and never a winter loss until last winter when two mice squeezed in and ruined one colony. However this is educational to me. I thought I knew a mouse's limitations before; but I surely do now and there will be no more mice nests inside the hives. Our one hive went thru the winter in fine shape and has made over 200 pounds of clover honey."—I. T. Rowland, Albany, N. Y.

"We have about 240 colonies, and run most of them for comb honey, altho more extracted honey is produced here in the Yakima Valley than comb. This climate is very changeable, the temperature going below zero in winter, and away up in the 90's in the shade in summer. Between times we have great windstorms in which the bees are killed by the wholesale when coming home loaded with nectar. In the winter I have only a chaff cushion in an empty super over the brood-chamber and a piece of canvas over that with an entrance made smaller of course."—Victoria Becker, Yakima County, Wash.

"Last summer I carried your little one-frame observation hive with me for four weeks while I lectured in Ohio teachers' institutes. At the Hotel Secor in Toledo I was followed by detectives who thought the little hive was an infernal machine intended for purposes of destruction. I was told the next day that as many as nine persons had been in my room at one time inspecting what seemed to be a dangerous proposition. Among them was the manager of the hotel and the house detective. They did all this in spite of the fact that the name, 'A. I. Root Co., Medina, O.,' was printed on the hive."—W. A. Matheny, Athens, O.

"Your Gleanings should have much credit from this locality, as it was at least partially responsible for the organization of our local beekeepers' association for mutual benefit, with the result that local prices advanced 6½ cents per pound in five days after the association first offered honey in car lots. At the beginning of the season some contracts were made as low as 10c per pound, and the Utah car-lot buyers unani-

BEES, MEN AND THINGS

(You may find it here)

mously bid 15c f. o. b. In the five days prices advanced from 15c, our best offer received in the association meeting from a car-lot representative, to 21½c,

but no sales. The association eventually sold 100,000 pounds at 25c f. o. b. Utah. On account of bad weather and roads they are holding some that was not delivered for the same price, 25c; and, as the quality is strictly fancy, the selling committee feel that the honey is well worth the price asked."—John A. Cronk, Myton, Utah.

"Mind you, I do not say bees can not hear; but I have been quite a close observer for nearly 40 years, and I am still awaiting evidence that they can. When those wonderful aluminum combs supersede the combs constructed by the bees strictly in accordance with the laws of their Divine Creator, then I will believe that bees can hear. But, really, what is the difference whether they can hear or not except for our satisfaction of knowing? It is the honey they are after (and they do not find it by following the 'come-on, girls,' tone of field workers), and that is what we are after also."—Elias Fox, Juneau County, Wis.

"All writers appear to condemn Heurth's Punics. I have tried them now on a large scale for five years, and have obtained 10 times the crop and 30 times the unfed increase that I used to get from natives. Indeed they have been my staff during this awful epidemic among bees. Can you not appeal for a fair trial of them? Prejudice dies hard, and Cowan's verdict was on the surface a true one. They have some grievous faults, but they are a most wonderful bee. I have tried many thousands of them, and can speak with some confidence."—C. B. Bartlett, Barley Park, Oxon, England.

[The writer claims to be the largest bee-keeper in the British Isles.—Ed.]

"I winter my bees outdoors in standard ten-frame hives. I have my colonies on a stand 18 inches from the ground, stand holding 10 colonies, and tight against each other for winter. I remove all the tops to get them as close as possible and cover the entire 10 with one cover made in the same way that the ordinary metal cover is made. I place above the frames a small lattice-framework consisting of five strips of ¾-inch wood, which cover about seven frames, with the cross strips turned down so as to give the bees access from one frame to another across the top of frames. Over this I place a super with a burlap bottom and fill super with cut straw or hay, and my bees generally come thru O. K. and I have them working in the supers during apple-blossom time."—Otto J. Spahn, Westchester County, N. Y.

DR. E. F. Phillips, with his force of Government Extension Workers, will co-operate with the various extension divisions of the following States, on the dates given, in putting on extension short courses for commercial beekeepers, as follows: Purdue University, Lafayette, Ind., the week beginning April 7; Iowa State University at Ames, the week beginning April 14; Minnesota, at University Farm, St. Paul, the week beginning April 21. These short courses will be given for the benefit of commercial beekeepers, the same as the short courses recently given in California and at Ithaca, N. Y., with such marked success. The tuition in the several courses is free to all residents of the several States. Dr. E. F. Phillips and George S. Demuth, of the Apicultural Division, Bureau of Entomology, Washington, will be in direct charge and will be chief instructors in the courses to be given. No commercial beekeeper in any of these States can afford to miss the course offered them, because of its proved value. We would refer our readers as to the benefits of these commercial beekeepers' courses to what R. F. Holtermann, one of the best beekeepers anywhere, has to say in this issue of Gleanings of the same course given at Ithaca.

B. F. Kindig recently conducted a short course for beekeepers at the Michigan College of Agriculture with great success. It is said that this short course was the most popular of any of the apicultural short courses offered at the Michigan College this year.

Many of the beekeepers and beekeepers' associations of Ohio are seeking affiliation with the county farm bureaus now established in almost every county in the State. This move is one that may well have the attention of beekeepers in any county wherever there may be an agricultural county agent.

The Dixie Beekeeper is the name of a new apicultural journal to begin publication at Waycross, Ga., Apr. 1, devoted to Southern beekeeping, with J. J. Wilder as editor and publisher. Mr. Wilder announces his proposed journal as "the only bee paper published in Dixie." There is a field for this new journal, and Gleanings extends its heartiest wishes for its success and the benefit it can bring to Southern beekeeping.

Elton Warner, for 20 years a beekeeper in Porto Rico, is now transferring his beekeeping activities to North Carolina and upper South Carolina, where he will have a thousand colonies the coming season. He is a successful and practical beekeeper along

JUST NEWS

Editors

modern and progressive lines, and his faith in the beekeeping possibilities of the section of country to which he is moving clearly indicates the great

possibilities for better beekeeping now so rapidly advancing in the southern part of the country.

In a statement issued to the members of Michigan Affiliated Beekeepers' Association Secretary B. F. Kindig states that there are approximately 40,000 beekeepers in Michigan, who on an average produce annually 10,000,000 pounds of honey.

The 28th annual meeting of the Connecticut Beekeepers' Association will be held in the old Senate Chamber, Hartford, on Apr. 5, beginning at 10 a. m. A very practical program has been prepared, and every Connecticut beekeeper, who can, should attend. L. Wayne Adams, 16 Warren St., Hartford, is secretary.

The Ontario Beekeepers' Association has prepared a list of pound-package shippers of bees, with prices, for distribution to its members. The Association wrote to Southern queen-and-bee-rearers, asking for quotations, and asking how well prepared they might be to ship bees to the Ontario beekeepers, and if they could guarantee delivery in good condition. The Association assumed responsibility to the shippers for any orders placed for its members by the Association.

Frank Benton, for many years prominently identified with the beekeeping industry of this country, and for a time head of the apicultural activities of the Department of Agriculture at Washington, died at Fort Myers, Fla., Feb. 28, where he had gone for the benefit of his health. His home was at Coldwater, Mich., where he was born July 5, 1852. From his childhood he was an enthusiastic beekeeper and student of apiculture. He spent 12 years abroad, living in Cypress, Beirut, Syria, Germany, and Austria, investigating the different races of bees in those foreign countries, and shipping them to all parts of the world. During his administration of the Department of Apiculture at Washington he occupied very much of his time in the investigation of the various kinds of bees, and traveled much abroad in this work. He was especially interested in the big bee of India, the *Apis dorsata*, and tried to acclimate them in this country. His administration of the department was a stormy one, but today no one questions the right purpose of his great enthusiasm, and his devotion to the cause and advancement of beekeeping.

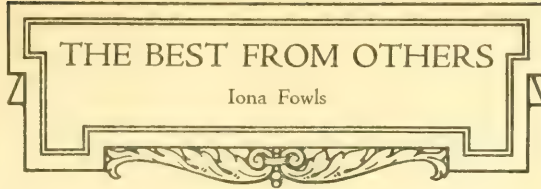
FEELING the need of scientific investigation concerning many of the problems that confront beekeepers, the Texas beekeepers, so states the Beekeepers' Item, are asking the passage of an experimental-apiaries bill. In speaking of the need of such a bill, reference is made to the fact that Texas has about 600,000 colonies, and produces about 15,000,000 pounds of honey annually; also that this State has more colonies than any other; that one-fifth of all the bees west of the Mississippi are in Texas; and yet that nearly two million dollars' worth of honey is imported into Texas annually, notwithstanding the fact that twenty times the number of colonies could be kept, and twenty times the amount of honey produced, if Texas beekeepers were educated to take advantage of their opportunities.

* * *

LARGE AND SMALL HIVES.

The large and the small hive is discussed by Miss Emma Wilson and Frank Pellett in the March number of the American Bee Journal. Mr. Pellett's view of the question is hardly to be questioned. In fact, he makes the same argument as does Dr. Miller in January Gleanings. However, inasmuch as he has somewhat misquoted me, I will repeat what I stated in Dr. Miller's department—that for those who neglect their bees there is little doubt that the ten-frame hive is preferable to the eight-frame for wintering; but for those who attend to supplying their colonies with stores in the fall (which, it is to be hoped, the great majority of our readers do) I believe colonies may be wintered warmer and cheaper in an eight-frame hive or in a ten-frame contracted to eight. And now I might add that all the colonies I own are in ten-frame hives; and, if I ever change the size, it will be to get a larger hive, or at least a larger brood-chamber.

The points Miss Wilson makes, however, in favor of the lighter supers are very well chosen. She rather takes E. R. Root to task for advocating thirteen-frame hives. (It is quite certain that Mr. Root had no intention of recommending the thirteen-frame hive for general adoption. He will doubtless state his position more fully in the near future.) She says that even if the thirteen-frame hive were piled five high, and the eight-frame eight high, which would give the same capacity, it would still be about as easy to remove the supers from the eight-frame as from the thirteen-frame; for, tho it would be handier to lift the three supers from the high eight-frame hive than the two top supers of the thirteen-frame hive, still this extra work would be offset by the greater ease in removing the remaining five of the eight-frame supers than the three of



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the thirteen-frame supers. In the second place, Miss Wilson thinks that in the majority of cases the supers are not piled as high as this. She further calls at-

tention to the times the brood-chamber must be moved to a new stand or down cellar and out again. In these cases, she says, the lifting is 62½ per cent harder with the large hives than with the small. Last of all, she says all discussion along this line is quite idle for those women who simply can not lift a thirteen-frame hive at any height.

A great many of us would not care to use an eight-frame hive at all; and yet these same arguments that hold in regard to the thirteen-frame and eight-frame hive will hold also, tho in less degree, to the thirteen-frame and the ten-frame. Those who wish to save themselves too much heavy lifting, and yet are interested in a large brood-chamber may find themselves quite contented with a two-story ten-frame brood-chamber in the spring. Others may perhaps like to try out a few colonies on Harry Hewitt's plan, as given in the last issue of Gleanings.

* * *

INTRODUCING VIRGINS.

Virgin queens even eight or ten days old may be easily introduced, claims Ray Moore in the American Bee Journal for March. He takes two frames of bees from several colonies and shakes them into a cage and places them in a cool dark cellar and leaves them about 24 hours. Then he prepares small six-inch cubical boxes with 1 by ¾-inch screened entrances, each box containing a section of honey and the two empty sections. Into these boxes he shakes about half a pint of bees sprinkled with water, and also shakes in one of the virgins and closes the hive. The next day the screen is removed, and in about a week the queen is laying, when she is introduced to a stronger nucleus.

[Mr. Pritchard introduces virgins up to four or five days old in about this way; yet he prefers to get the bees to make up the nuclei from an outyard, for otherwise some of them return. He would not care to keep them in the cellar for 24 hours, preferring to use them as soon as convenient after making up; for hungry bees, he finds, are more apt to ball a queen.]

* * *

VALUE OF DOUBLE WALLS.

In discussing the double-walled hive in the February issue of the Canadian Horticulturist and Beekeeper, G. A. Deadman says: "By using two boards ¾ inch thick and a dead-air space of about ¼ inch or two quarter-inch thick and a dead-air space of ¾ inch, you have a hive that will be of the same dimensions as the single-walled, re-

quiring no more lumber and being lighter in weight. Had I then known what Mr. Dnnn tells us regarding the cork dust he uses, I certainly would have made allowance for that, and saved the work of packing in the fall and unpacking again in the spring. A double-walled hive is preferable if only a dead-air space of $\frac{1}{8}$ inch, whether you re-pack for winter or live in a climate that, so far as cold is concerned, requires no packing.

"I simply have the grain of the wood run perpendicular for the inside wall, and horizontal for the outside. By doing this I have a hive that never varies so far as the depth inside goes, and so the distance below the frames always remains the same.

"You may call me a crank on this double-wall business if you like; but I have such a strong conviction of its superiority that I have even my supers double-walled at the sides. The ends I leave single, as I get more frame space. You can not go around my apiary after a frosty night and locate the cluster of bees by the moisture on the cover, as my covers are double-walled, as also the movable bottom-board."—Canadian Horticulturist and Beekeeper, February.

* * *

SCHEME OF GRADING HONEY.

A scheme of grading honey in 12 grades according to color has been copyrighted by Tarlton Rayment. The plan is given in the January issue of the Apicultural Journal. To secure standards for the different colors, small glass vessels of equal capacity were filled with different grades, and a water-color painting of each was made. The result was 12 colored diagrams made up of four groups of three each—yellow, golden, amber, and brown, each of the four groups being made up of the three tones—pale, medium, and deep. The yellow grades are designated as Y1, Y2, Y3, and the golden G1, G2, G3, etc. A. J. Wheeler believes this color scheme too complicated, and would reduce the number of grades to three—light (A), medium (B), and dark (C). Also, since the printed diagrams would so easily fade and become soiled, he would use colored grading-glasses. One thickness would give the lightest shade permissible for medium; two thicknesses the darkest shade for medium; anything lighter than one thickness would be A; any honey of shade between that of one and of two thicknesses would be B, and any shade darker than the shade of two thicknesses would be C.

[H. H. Root has been experimenting with various colors of glass, and finds that one can, in this way, obtain satisfactory and permanent standards.]

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THOUSANDS OF COLONIES SHIPPED INTO CALIFORNIA.

Several thousand colonies are being shipped into Riverside and San Bernardino counties, Cal., from Utah and Idaho, some for honey production, but many for increase and early queens to be shipped north for

the alfalfa and sweet-clover crop. Chas. S. Kinzie, in the February Western Honeybee, is not overly pleased at having the good roads worn out by these intruders, and the California beekeepers crowded off their ranges. He suggests a license tax of 25 cents per colony on all imported colonies.

* * *

DISAPPEARING DISEASE DISCUSSED.

In a report of the Ontario Beekeepers' Annual Convention in the February Canadian Horticulturist and Beekeeper we find the following: "The subject of the disappearing disease, or bee paralysis, came in for considerable discussion. Considerable difference of opinion as to its cause was expressed." When asked if he had noticed any difference between the disappearing disease and bee paralysis, Mr. Stewart said they were similar in their symptoms, but he could go no further than that. He said that he noticed the disease 20 years ago.

* * *

CAUSE OF HOLES IN CORNERS OF COMBS.

"Just learned something thru the glass hive in my office. I had four sheets of paper over the glass. There was a nail-hole thru the paper, and it made a little spot of light on the outside comb. The bees promptly gnawed a large hole thru that comb. That accounts for the combs down in the brood-nest being eaten away at the corners."—Chas. S. Kinzie in February Western Honeybee.

* * *

"DR." E. R. ROOT.

"'Dr.' E. R. Root, editor of Gleanings in Bee Culture, the leading bee-periodical of the world, is spending the winter in Los Angeles, and is giving much time to bee demonstrations before various organizations. He has acquired the title of 'Doctor' since his appearance here, and his bee-stunts are certainly doing much to popularize and arouse interest in beekeeping."—February Western Honeybee.

* * *

LIGHTNING OPERATOR.

To take care of 500 or 600 colonies, and do all the extracting alone, and with a two-frame extractor taking over a ton of honey a day, is quite a stunt; and yet, we infer from the February issue of the Western Honeybee, this has become a sort of habit with O. W. Stearns of Selma, Cal.

* * *

TO PREVENT FOUNDATION STICKING.

To keep foundation from sticking to the board when using a wire-imbedder, A. E. Lusher, in the February Western Honeybee, states that he uses cornstarch, talcum powder, or soapstone. [Of these three we believe cornstarch preferable.]

* * *

RESTOCKING FOR ISLE OF WIGHT.

Nearly 100 colonies believed to have a considerable degree of immunity from Isle of Wight disease, have been distributed among beekeepers in Scotland during the

(Continued on page 265.)

QUESTION.—

In an article by Frank C. Pellett on beekeeping, he says if the queen is lost when there are no larvae or eggs from which to raise another queen, the colony is doomed.

In another place he says that in the spring if one finds the queen dead, he may purchase one and replace her. Then why could he not do this any time during the season if the queen is lost and there is no chance of rearing another?

New Jersey.

Mrs. F. B. Shaffer.

Answer.—That is exactly what he should do. Mr. Pellett simply meant that, if no queen is provided, such a colony is doomed.

Question.—Would not old kid gloves be better to handle frames with than brown duck or canvas bee-gloves?

Pennsylvania.

Ralph Gaston.

Answer.—No. In our experience kid gloves are much worse than nothing. It is very awkward to work in the apiary with gloves of any kind; but, if gloves must be worn, we advise very loose canvas gloves.

Question.—Would it pay to try to keep pure Italians in a thickly settled district where everybody keeps black bees in box hives?

Indiana.

S. E. Troxel.

Answer.—Yes, it certainly would pay you to keep good Italians. In your location this will mean that in mating you will sometimes get hybrids. However, a strain of bees from an Italian queen mated to a black or hybrid are nearly always good honey-gatherers, and often the first cross are better at honey-gathering than either of the original strains.

Question.—I looked in my hive, and part of the comb in the brood-chamber is quite dark. What is the cause of it, and what shall I do?

North Carolina.

H. C. Fox.

Answer.—The dark color of the combs need not worry you in the slightest, for the dark combs are those which have been in use for a long time in the brood-chamber. The older combs become, the darker they are; but, contrary to the belief of some, we do not think that age lessens the value of combs at all. In fact, we rather prefer the old combs. They certainly are warmer during the winter, since the cells are lined with many layers of cocoons. Not only do we prefer old combs, but the bees also show the same preference.

Question.—When I purchased my colonies last spring I placed them on a bench about two feet from the ground, with the front about an inch lower than the rear. Is my plan wrong? Should my hives be nearer the ground?

Pennsylvania.

A. H. Gilmore.

Answer.—You would, we believe, like it better to have your hives down nearer the ground. They should not, of course, rest on the ground, but be high enough up to be away from the dampness. They may rest on bricks or on 2 x 4's, or on a regular hive-stand which one can easily make. When hives are placed on stands or benches of

GLEANED BY ASKING

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some height it necessitates much more lifting during the honey flow; also, if the colony is wintered outdoors, it is probably not as warm as it is

when closer to the ground.

Questions.—(1) When bees start to swarm, and the queen is caught in a wire Alley trap, will the bees return to the hive? (2) If you let the queen loose from the trap will she swarm? (3) Is it wise to leave the wire Alley trap on all the time? (4) Will all the bees go thru a bee-escape? If so, how long will it take? (5) Can the drones be caught in a wire Alley trap?

New Jersey.

Clyde R. Lumadue.

Answers.—(1) Yes, they will return; but the proper thing to do when they swarm is to move the old hive to a new location and put on the old stand a hive with empty combs or frames of foundation. In a short time the swarm will return, and, if the queen is then given them, they will enter the new hive and probably remain contentedly. (2) The colony will usually swarm again the following day. (3) No. It would seriously interfere with the workers carrying in honey and pollen. (4) The bees will usually all leave a super in 24 to 48 hours, if it contains only honey; but, if it contains brood, the bees would not leave it. (5) Yes. That is the principal use of the trap.

Question.—Can you give me any information about stingless bees?

New Jersey.

H. Ritter.

Answer.—Stingless bees may be found all the way from the southern part of the United States to certain parts of Argentine. There are probably over 100 species, which vary greatly in size and habits. There may be from 100 to 100,000 in a colony. Some of these live in the ground, others in trees. The natives sometimes keep stingless bees in hollow logs, but seldom secure more than a gallon of honey per hive. Ordinarily the bees may be handled without veil or other protection; but when unduly stirred up they may be very cross, crawling into the ears, nose, and hair, and biting most viciously.

Questions.—(1) If one uses the Alexander method, would it not be a good plan to let the new colony on the old stand produce comb honey while the parent colony produces extracted honey? (2) If one captures the virgin queen from an after-swarm, why does the swarm insist on hanging to the limb instead of coming back to the hive? In every case our first swarms (led by a clipped laying queen) has returned within 15 minutes, while those led by virgins refuse to come back. (3) Would copper wire take the place of tinned wire for wiring frames of foundation?

New York.

Raymond Russell.

Answers.—(1) If either one of the colonies is to produce comb honey, the parent colony should be chosen. However, no comb-honey production should be attempted unless the colony is very strong. (2) If the colony persists in hanging on the tree after the virgin queen has been captured, it is

probable that another virgin is present. There are often several queens in a cluster. If only one were present, the swarm would in a short time leave the limb. They might cluster for a while, but would eventually return to their hives. (3) Copper wire may be used instead of tinned wire for wiring frames of foundation; but it stretches a little more readily than the ordinary wire, and is, therefore, harder to keep tight. Also, if the wire is to be imbedded by means of electricity, it takes more current to imbed the copper wire owing to the higher conductivity of copper over iron.

Question.—I have been working for the State as apiary inspector, and my experience is that in every case where there is an apiary that has been well supplied with salt around the front of the hive to prevent what is commonly called ants there is no foul brood. I know of different apiaries that are located very close to foul brood, yet where there is salt placed in damp places there is no foul brood. I have never had foul brood in my apiary, and I always use salt for the bees to work on. I am sure salt is a preventive. L. D. Sharp.

West Virginia.

Answer.—We have known of others who held a similar view, yet our own experience has not borne this out. We use salt in front of our entrances in order to keep down the grass. Some years we have no foul brood, other years two or three cases may appear, quite regardless of the presence of salt. In this one apiary to which we refer there is no question as to how the bees contract the disease, since we have a kind neighbor who keeps us from time to time supplied with this disease. We can not see that salt has any effect on foul brood, either as a cure or as a preventive.

Question.—It will be impossible for the next year or two to visit my bees more than twice a year. They are in 12-frame hives. When I packed last fall they had plenty of stores for an ordinary winter. What I am worrying about now is that this exceptionally warm winter will start brood-rearing early, and so make them run out of stores before fruit bloom, and still I am afraid to unpack before fruit bloom for fear of chilling, especially as it will be necessary at that time to give empty supers. Massachusetts. Oscar B. Perkins.

Answer.—How splendid it would be if bees could be as easily taken care of. Yet we do not consider it possible to take good care of colonies by opening the hives only twice a year. The problem that now confronts you is similar to many that will follow if you find it necessary to give your colonies such scant attention. If they now need stores it would, of course, be disastrous not to feed them, and yet it is quite evident that it would not be safe, at this time, to give them all the surplus room they may need thruout the summer. If not able to visit the bees oftener, we wonder if it would not be possible for you to get some one in the immediate neighborhood to give the supers when needed. In most cases those who have tried managing their bees with less work than is usually considered necessary have hired some one near the apiary to do certain things at the necessary time. In this way only, and only in localities free

from disease, do we think it possible that you can make a success of let-alone bee-keeping.

Question.—Can I start a colony of bees with a two-pound package on just frames with foundation? If not, what is the smallest amount of empty combs I can use? J. D. Dietrich.

Michigan.

Answer.—These nuclei could be given frames of foundation, altho combs are greatly to be preferred. We advise giving at least one comb to each nucleus if sufficient combs can be obtained. It will, of course, be necessary to feed a cup of syrup daily for a month or more, according to the directions that accompany the packages.

Question.—I should like to know the value per year to bee culture of a hundred fine basswood trees. They were grown in an open wood with ample room, and are very wide-spreading. The owner is contemplating clearing them up, but the wife wishes to preserve them for sentimental reasons. If they are of sufficient value as bee-forage, the husband might be induced to save them. Mrs. Charles Dean.

Indiana.

Answer.—We can give no exact statement as to the number of pounds of honey those trees would yield. But here at Medina one year, when conditions of heat and humidity were just right, we had an average of over 14 pounds of basswood honey per day for three days; and there is on record a colony in New York that for ten days stored an average of over 30 lbs. per day from basswood alone. As a general thing one would expect much less honey than this from basswood, and yet we assure you that 100 basswood trees would be a valuable asset for any beekeeper.

Question.—One of the local stores recently had some comb honey on sale in square boxes which were spotlessly clean but did not have the appearance of having been scraped. I use the Danzenbaker sections, but find they need considerable scraping, and even then the stains are not entirely removed. Can you suggest how I may eliminate my trouble? Julius C. Bechtel.

New York.

Answer.—Some strains are more liable to propolize the sections than others. Possibly by requeening you could improve this condition. Aside from this we know of no way to keep the sections cleaner other than to keep very strong colonies, leaving them rather crowded for room, so that the sections may be finished as fast as possible, and removed as soon as the cells are completely capped. Of course, if sections are left on the hive for any length of time they soon become soiled and injured in appearance; and, if too many supers are given at one time, it takes the colony too long to complete their work, and the sections become travel-stained.

ANSWERS BY DR. C. C. MILLER.

Questions.—(1) To every quarter section of land we have about 20 acres of pasture with a light crop of white clover, about 5 acres alsike, about the same amount of red clover, also some of the clovers scattered along roads and fences. In the spring we have lots of dandelion, a few locusts, and about 15 apple trees to each farm. In the fall we have goldenrod and asters scattered along the fences, and

lots of catnip in the groves. Can I keep a hundred colonies in one apiary? (2) My bees are in a cave with only the inner cover on top. These seem to warp up on the sides so there is a crack of about a quarter of an inch with fully a $\frac{3}{8}$ -inch opening in front. Will this be all right for the bees? (3) There is a little mold in the cave. Will it do any harm? (4) If I put some bees in the hives, with foundation, how much should they be fed to draw out the combs when there is no natural honey coming in? There is about three pounds to the swarm. Iowa.

Answers.—(1) It is hard to speak with definiteness about such things, but I should count it quite a safe thing to have 100 colonies in one apiary in such a place. (2) That $\frac{3}{4}$ -inch crack will do good, and likely make the ventilation of the hive all right, provided the ventilation of the cave is all right. (3) A little mold will do no great harm, altho it would be better not to have any. The mold and the warping of covers indicate dampness and lack of ventilation. Perhaps you can increase the ventilation. It is also not unlikely that the cave is too cold. If below 45 or 50 degrees, warming up a little will help both as to dampness and ventilation. (4) I don't know definitely. Counting that no drawn comb is present in which the syrup can be stored, I should guess that a pound a day of equal parts of sugar and water might do, and that more would make faster work if the bees will take it. This answer is subject to modification by any one in the office of Gleanings who is not as ignorant about it as I am. [From our experience this would depend greatly on the temperature. We should guess from one to two pounds a day.—Editor.]

Questions. —Please pardon me. I do not come criticising nor dictating, but merely seeking information based upon facts. (1) On page 23, January Gleanings, in regard to field bees carrying honey to the top super of a hive containing five or six supers, would the fact of the bees unloading their pollen in the brood-chamber, where they know it is required, be any evidence that they do not carry their loads of nectar far above, where they also know it is required, and that there is room for it? (2) If, as you seem to think, the field bees merely carry the nectar in and dump it into empty cells in the brood-chamber where the young bees take it into their sacs and evaporate by thrusting it out with their tongues, then I should like to have you explain how they can do this when the brood-chamber is already filled with honey and brood; and, if such might be the case, how do you account for the nectar being so thin that you can shake it out of the combs by hand, or even have it drip out by turning the comb on its side after this imaginary evaporation, and storing in the topmost super? (3) In the same issue, page 24, you say that at the approach of winter the 10-frame hive would have two frames more of honey than the eight. Yes, they would have at least two "frames more," but not always two frames more of honey; but conceding this to be a fact, would they not normally also contain proportionately more bees? (4) On the same page you tell us the three varying temperatures of your cellar, yet you failed to tell us what the month was at the time this test was made, what the outside temperature was, what the condition of the bees was as to quietness, and whether the three tests were made with three different thermometers (which I presume was the case). If they had not been tested together, is it not possible

that they too may have varied, at least slightly? (5) I should also like to ask if you or any one else can tell me about what the winter loss by weight in dead bees should be in 135 colonies, mostly 10-frame, in the cellar, being confined from Nov. 23 till April 6, dry cellar, and covers and oilcloths on the hives—a winter, say, like the one a year ago, all but one colony coming out alive? Elias Fox.

Wisconsin.

Answers.—(1) You are quite right that the fact that bees unload their pollen in the brood-chamber is not proof that they unload their honey-sacs there. It was a poor attempt at proof. (2) You ask how the bees can unload their sacs in the brood-chamber when said brood-chamber is already filled with honey and brood. There are cells partly filled with honey that offer some room. Then each day there are young bees emerging from their cells, into which cells the fielders can temporarily thrust their honey. If there is not room enough in the brood-chamber, there is no law against using the nearest cells to be found in the supers. At any rate the thin liquid is there, in the brood-chamber, as you can easily satisfy yourself, and if the fielders didn't put it there, who did? You ask how to "account for the nectar being so thin that you can shake it out of the combs by hand." That shaking business is really a proof that the fielders dump their loads in the brood-chamber; for the brood-combs are the very ones where the honey shakes the most. Indeed the first delightful proof that the bees have begun to bring in a surplus is when upon shaking the bees off a brood-comb we cry out, "The honey shakes." Anyhow, there's the thin stuff in the brood-chamber. Don't you think the fielders put it there? There's another proof that has been brought forward. Into a colony of dark bees introduce a light queen. Then a few weeks later, when the old bees have all become fielders and the nurses are all light, take the cover off the top super and see the color of the bees in it. Few or no dark bees there, but lots of yellow ones, showing that the young bees are the ones that bring up the honey. I think I ought to add that most of what I have here said I should credit to that close and reliable observer, the late G. M. Doolittle. (3) As to there being more stores in a 10-frame hive in proportion to the number of bees, ask any observant inspector in which hive he finds the most starving, and also read what Miss Fowls says on page 24. (4) When I gave the temperature at three different points in the cellar I didn't report upon the things you mention, and it didn't occur to me that any one would want to know. As to thermometers, I used the same thermometer, taking the temperatures in immediate succession, making it practically at the same time. (5) I don't know the answer to this question. C. C. Miller.

I arise to remark to ye editor or any one of his fellow-conspirators that I'm glad Mr. Fox didn't "come criticising." If he should come in a really critical mood I'm afraid it might go hard with me. C. C. M.

SOME time during maple bloom or fruit bloom there will doubtless be a wonderful spring day when the entire apiary will be vibrating with the music of humming bees. Then is an ideal time to become acquainted with those fascinating little friends that have impelled us to a reading of these pages.

Preparing to Open the Hive.

Armed with a good bee-veil and lighted smoker, and bearing in mind that bees seriously object to sudden jarrings and quick motions, it will be found that, if our directions are followed, good Italian bees may be quite safely handled, even at the first attempt.

On approaching the hive give one or two gentle puffs of smoke at the entrance, just to inform the ever vigilant sentinel bees stationed there whose duty it is to protect the colony from sudden attack, that, tho their hive may be unavoidably jarred during the next few minutes, it would be well for them not to be too highly sensitive, since the intruder is well prepared to defend himself—with smoke.

A Glimpse Within.

Working from the side of the hive, carefully remove the outer cover and insert the edge of the hive-tool in the crack between the ends of the inner cover and the hive and gently pry the cover, breaking the propolis with which the bees have cemented the cover to the hive. Then lift the front end of the cover a quarter of an inch or so from the top of the hive, at the same time blowing a gentle puff or two of smoke over the tops of the frames. This will drive many of the bees from the tops of the frames down on to the combs, where they will immediately dip into the cells of honey and proceed to gorge themselves, after which they will be very docile and easily handled. Even those not gorged with honey will still be enough confused by the smoke to prevent their acting in accordance with their natural instinct to protect the colony.

Handling Frames.

After removing the inner cover select for inspection first the second or third frame from the side, where the queen is less likely to be found, for if the queen should be on the first frame removed she might possibly be injured by being rubbed or crushed when the first frame is withdrawn from the closely adjacent frames. Now place the curved end of the tool between the ends of bars and gently pry one frame loose from its neighbors. Also loosen the opposite end, and, with the curved end of the tool, lift the frame just enough so that the fingers of the left hand may easily grasp the end of the top-bar. Then take the opposite end with

TALKS TO BEGINNERS

By Iona Fowls

the right hand and slowly lift the frame straight up, holding it always in a vertical position.

If one wishes to turn the frame over and

look at the opposite side, it should not be turned directly over with the bottom-bar remaining horizontal; for, if the comb is heavy with honey and insecurely attached, it may break from the frame. Moreover, if a frame is held horizontally, it might result in the queen's fall and injury, for a laying queen is quite easily dislodged from a comb.

As the frame is held by the ends of the top-bar perpendicularly in front of one (see Fig. 1), raise the right end above the left,

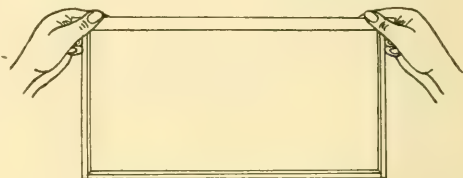


Fig. 1.—First position of frame.

thus bringing the top-bar into a perpendicular position (see Fig. 2); then revolve the frame on this perpendicular axis until the opposite side is toward the beginner (see Fig. 3), when the right hand may be lowered to a position level with the left hand, thus

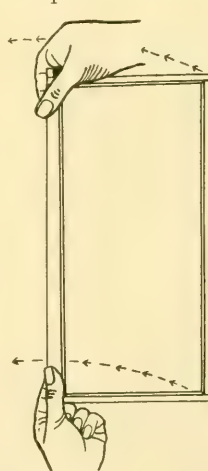


Fig. 2.—Second position. Arrows show direction in which the frame is now to be turned.

leaving the frame still in a vertical position, and still held by the ends of the top-bar; but the bottom-bar, now at the top (see Fig. 4) instead of at the bottom, as in the original position. In order to get the frame in the right position for returning to the hive this operation should be reversed. This manner of handling may sound rather involved and quite unnecessary; but in reality it is very simple, and may save the beginner a broken comb or the loss of a queen.

Practice it with an empty frame. To make room to work place the first frame removed to one side in a box.

Keeping Bees Under Control.

After working a few minutes at the hive, many bees will probably come up on top

of the frames. If they move about contentedly, paying but little attention to the beginner, there will be no further need of the smoker; but if one notices a row of heads sticking up inquiringly between the frames, each bee apparently alert, just waiting for a signal to dart at the operator, or if one observes quick sudden moves of the bees on top of the frames, and perhaps an upward curving of the abdomen with the point of

the sting protruding, then it is full time to resort to the smoker. The bees, however, should not be smoked too vigorously. A few gentle puffs is all that is necessary.

Three Kinds of Individuals in the Hive.

As one watches the bees on the frames he will find the individual bees going this way and that, sometimes crawling over each other, but usually crowding their way in between those that happen to block their way.

Those thus crowded show no resentment, but quite graciously grant a momentary gangway, in this respect showing themselves vastly superior to human beings. The great majority of these bees are like those the beginner has frequently noticed on flowers

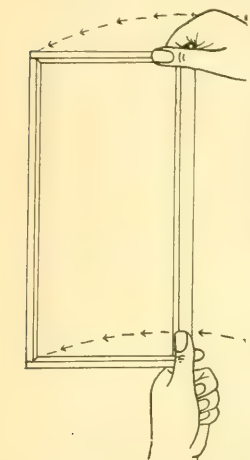


Fig. 3.—Third position. Arrows show direction from which the frame has just been turned.

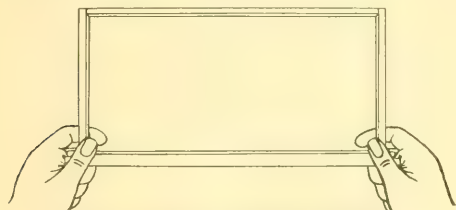


Fig. 4.—Fourth position of frame.

in his garden. They are the workers, or honey-gatherers, and are undeveloped females.

Here and there among the workers may be noticed a few blunt thickset bees larger than the workers. These are the drones, or male bees, which are entirely dependent on the workers, since they are unable either to protect or provide for themselves, having no sting, and the tongue being too short to obtain nectar from flowers, altho a drone is able to help himself from cells of honey already stored by the workers.

Perhaps one may be fortunate enough to note on one of the combs a somewhat irregular circle of workers mostly facing to-

ward a large splendid-looking bee not as blunt as the drone, but much longer, and quite regal in bearing. This is the queen, the mother of the entire colony. If one watches her for a time he may notice workers softly caressing her with their antennæ, if she chances to stand still for any length of time. If the bees have been handled carefully, the beginner may have an opportunity to see the queen deposit in the cells little white eggs one-sixteenth of an inch in length. She progresses busily over the comb, apparently choosing those cells that best please her, and then, while hanging to the edge of the cell with her feet, she inserts her abdomen, curving it downward into the cell, and deposits her eggs, gluing one in the bottom of each cell.

Arrangement of Brood.

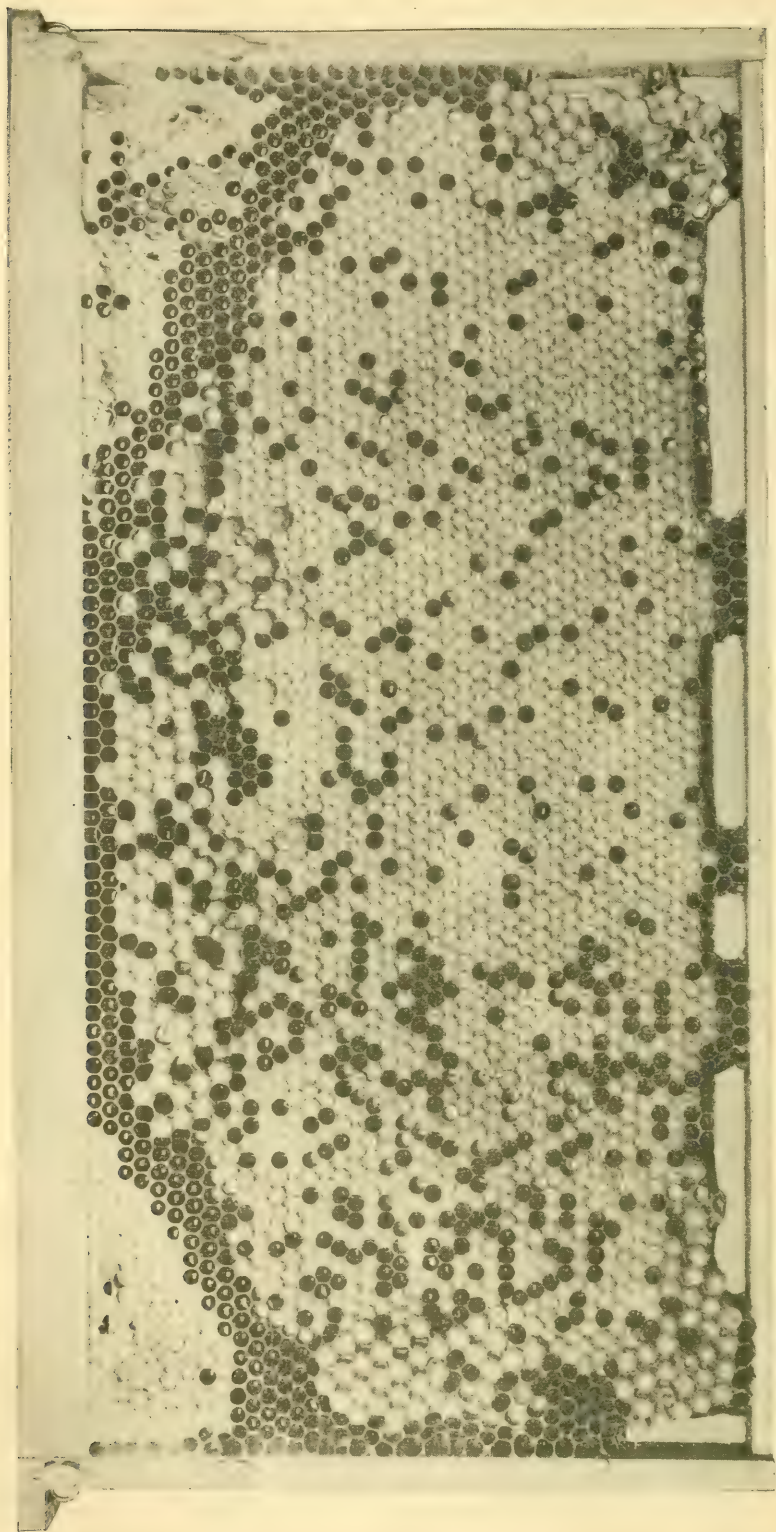
Most of these eggs are placed in cells about one-fifth of an inch in diameter, of which cells the combs are almost entirely composed. A few, however, are placed in larger cells about one-fourth of an inch in diameter. In the smaller cells are developed the workers, and in the larger ones the drones. Near the cells of eggs will be found cells containing pearly-white grubs of various sizes. These are larvæ in different stages of development. When the larvæ become large enough they spin cocoons about themselves and pass into the pupa stage. At this stage the cells have light to dark-brown slightly convex cappings made of wax and fibrous material. The cells of eggs, larvæ, and pupæ—that is, all the unhatched bees of the hive—make up what is called the “brood.” That part of the combs in which brood is being reared is the brood-nest; and the entire chamber which contains the brood-nest is called the brood-chamber. In the spring, when the queen begins laying, she usually places the eggs toward the center of the hive. She lays quite regularly; and, as the little circle of brood gradually increases, similar smaller circles are started on the adjacent combs, so that, roughly speaking, the general form of the brood-nest is that of a sphere or ball.

Placing of Pollen.

Surrounding the sphere of brood, tho not arranged regularly, may be noticed cells not capped over, but containing a yellow, red, green, or perhaps dark-brown substance. This is pollen mixed with a little honey, the pollen having been gathered by the bees from flowers, and carried home packed in pellets on their rear legs. It is possible that the beginner may catch sight of some bees rushing about on the combs with these variously colored little balls, looking for suitable cells in which to deposit them. Having chosen such a cell the bee backs in, and, holding the rear legs down in the cell, dexterously removes the balls of pollen. The “beebread,” as the pollen moistened with honey is sometimes called, is gathered especially for feeding the young larvæ.

Location of Honey-cells.

Just outside of the brood and beebread,



COMB SHOWING VARIOUS KINDS OF CELLS.

This frame of comb shows cells of brood and also of honey. The drone brood in the lower corners and a few other places may be easily recognized by the large convex cappings. The worker brood, of which most of the brood here shown consists, has the same fibrous, light-to-dark-brown cappings but not as convex as the cappings of drone brood. The unsealed brood is shown scattered here and there in the open cells. A few cells with small curled-up larvae may be seen on the left half of the comb. Some of the older brood have hatched and there is no need of raising such quantities of brood, which the queen will fill again with eggs in a short time. Later on, when these cells of brood have hatched and there is no need of raising such quantities of brood, these same cells may be used for storing honey. Sealed honey, which usually has white cappings, is shown in the upper corners, and the unsealed honey is shown just above the brood and below the sealed honey. Next each end-bar will be seen a row of irregularly shaped attachment cells.

toward the borders of the combs and the sides of the hive, are the cells of honey, which may be either worker- or drone-cells. These honey-cells have somewhat flattened coverings or cappings of white, yellow, or bluish-white wax. At the edges of the combs, attaching the combs to the frames, are cells of an irregular shape called "attachment cells."

In the raising of brood great quantities of honey are consumed; and as the bees use first that honey next to the brood, the cells are generally emptied fast enough so that the queen is kept supplied with empty cells for egg-laying, and the room is supplied in the best possible place right next to the brood already started where the bees can more easily keep it warm.

Queen-cells.

In the brood-nest itself, therefore, may be found cells showing three stages of brood, eggs, larvæ, and sealed brood, while outside the brood-nest are the cells of beebread and cells of honey. These cells are classified according to their size and shape into worker, drone, and attachment cells. There now re-

"chyle," which is provided by the nurse bees. The larva continues to increase until the cell is sealed and a silken cocoon spun about the larva, which is now spoken of as a pupa. On the 24th or 25th day from the depositing of the egg the drone leaves the cell, and about two weeks later takes its first flight.

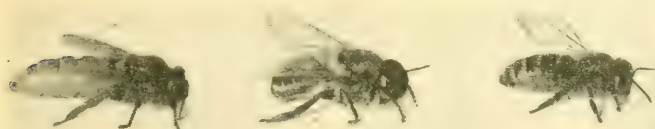
As previously stated, the drones are entirely dependent on the colony for their food; and whenever stores run short the workers quite ruthlessly drive them or carry them outside to starve. The assembling of drones in the grass before the hive may be taken as a certain indication of the cessation of the honey flow.

Life-history of the Queen.

When a colony for any reason, such as a deficient queen or a crowded condition in the brood-chamber or supers, feels the need of a new queen the bees begin the construction of long peanut-shaped queen-cells. After these are well started the queen deposits in each a small white egg, which after three days hatches into a tiny white larva which may be seen floating in a white thick milky substance. This chyle is more concentrated than that fed to either the drone or worker larva. (It is interesting to note that this same egg, if placed in a worker-cell, would, because of the difference in cell and food, result in a worker instead of a queen.) The queen

larva, cell, and amount of royal jelly increase in size proportionately until the sixth day from the hatching of the egg, when the cell is sealed. Up to this time the queen is still in larval form; but after sealing while in the pupal form she undergoes various changes which finally result in the adult queen. From the 15th to the 16th day after the egg was deposited, the queen, by means of her mandibles, begins cutting thru the lower end of her cocoon. If one chances to open the hive at just this time, he may see the points of her mandibles protruding thru the tip of the cell as she smoothly cuts a little round door which opens outward as she emerges from the cell.

After leaving the cell she generally helps herself to honey, and then makes a search for any other queen or queen-cells that may be present. As soon as the two queens meet, a mortal battle ensues, since a queen has no intention of sharing her glory with a rival. Also all unhatched queen-cells are destroyed, either by the queen or workers, leaving but one queen in the colony. Altho the queen has a sting, she seldom uses it except on a rival. From five to ten days after leaving the cell the virgin queen takes her wedding flight, and in a day or two increases considerably in size, and assumes a much more stately, dignified appearance. Then begins



Queen

Drone

Worker

(Photographed as nearly natural size as possible.)

mains one other kind of cell to be mentioned—the queen-cell. The beginner is not apt to see one at this first examination. These are present only when the colony has determined to swarm or to supersede—that is, to replace their queen with a new one. Queen-cells are usually found in a depression of an imperfect comb or along the bottom-bar or end-bar. In size and shape they are somewhat like a peanut or long slender acorn with the smaller end hanging downward.

Remaining Points of Interest.

This, possibly, describes all that the beginner will be likely to notice on his first glimpse inside the hive. He will now wish to know something of the life-history of each of the three kinds of individuals in the hive, and perhaps a little more concerning their various activities.

Life-history of the Drone.

The drone, or male bee, develops from an unfertilized egg which the queen deposits in a drone-cell. (The queen has, apparently, the power of laying fertilized or unfertilized eggs at will. The former she places in worker-cells, and the latter in drone-cells.) After three days the egg hatches into a small larva surrounded by a white, milky partially digested food called

her life duty of keeping the colony constantly supplied with plenty of bees. A good queen may lay 3,000 or more eggs daily during the breeding season, and perhaps as many as 200,000 annually for several years. Queens that for any reason fail to mate will lay; but their eggs, being unfertilized, will produce only drones. Such queens are called "drone-layers," and are quite worthless. In order that a colony be prosperous, it



Laying queen. Note the circle of bees gathered around her in mute adoration.

should always be kept supplied with a good laying queen, or at least the means of producing one; for, unless new bees are constantly coming on to replace those that are continually wearing out, the colony soon diminishes to the vanishing point.

History of the Worker.

The egg that is to produce the worker bee hatches after three days. The next three days it is fed the same kind of food as the queen larva, but in smaller amounts. Following this the worker larva is fed honey and pollen. Her development is slower than that of the queen, it requiring 21 days from the depositing of the egg to the hatching of the mature bee.

The young worker, when she first emerges, is covered with what appears to be fine, soft down, so that the beginner will have no difficulty in distinguishing her from the older bees whose down has been gradually wearing off. For a day or two she does nothing in particular except to walk about eating honey and industriously preening her "feathers." After this she takes up her duties as nurse-bee, and in this capacity partially digests pollen and honey which she feeds to the developing larvæ. She also performs other work about the hive, such as propolizing, house-cleaning, comb-building, etc. About the eighth day the worker indulges in her first flight or "playspell," making

many circling flights about her doorstep in order to drill her memory concerning the exact location of her home. In about two weeks' time she begins gathering pollen and honey from the fields. It is very interesting to watch the energy and enthusiasm with which young bees bring in their first loads of pollen and place them in the cells; also to watch others enter the cells and carefully pack the pollen in place. In the pollen-baskets on the rear legs bees may also bring home propolis with which they make tight all useless cracks and crevices about the hive.

Honey Stored and Ripened.

When returning with honey a bee enters a cell headfirst and feet upward. Then the bee holds quite still while a drop of honey appears at the mouth and touches the cell. This drop the bee slowly spreads over the cell wall, keeping the mandibles constantly in motion. During this time the drop completely covers the openings of certain small glands that quite likely help in changing the nectar into honey. While storing honey and ripening it, each bee keeps its tongue in the most unusual place, snugly folded behind the head, evidently out of the way of temptation.

The honey is evaporated, or "ripened," by the bees until it contains less than 25 per cent of water. This work is carried on mostly at night, the bees arranging themselves on the combs with heads upward, and then, forcing a drop of nectar to the mouth and mandibles, where it gently pulsates for about 10 minutes, it is swallowed and another drop appears. This honey-ripening continues until nearly midnight; and during its progress there is a most delightful drowsy humming thruout the apiary.

Wax Secretion.

During honey-ripening and the changing of nectar to honey, wax scales are secreted by eight wax glands on the under side of the abdomen. We regret that the scope of this article forbids a description of the way these thin wax scales are worked over into such beautiful thin-walled combs of such marvelously accurate measurements. This subject, we can assure the beginner, is well worth a little extra study.

Beginners' References.

Other interesting activities of the bees, such as swarming, robbing, etc., will be discussed in later articles. In our next issue we shall take up our first actual work with the colony.

This issue contains the following articles that will doubtless be of special interest to beginners:

Paragraph on "Importance of Abundance of Stores," p. 221; "Anne Lester and Daddy Lowe," p. 222; "What One Mistake Did," p. 226; "His Start With Bees," p. 229; "The Two-pound Package," p. 230; "In Texas," first paragraph of p. 239; "In Florida," last paragraph of p. 239; "Gleaned by Asking," p. 247.

WHEN the honey flow is suddenly cut off, from any one of sundry causes, unless the bee-keeper is on the watch, weak colonies are liable to be robbed, and when robbers get started and robbing is "on the rampage," woe betide the novice, and sometimes

the veteran also, if he does not succeed in putting a stop to it. If the colony being robbed is closed up (or, better still, carried away and placed in a dark cellar), the robbers are almost sure to pounce on the next hive; and I have known them to get so fierce as to test "the metal" of almost every stock in the yard. If it is only one colony doing the robbing, and you can be sure *which* one, these robbing "pirates" should also be put in the dark cellar. I need not go on directing what to do, for our books and journals have again and again gone over the matter in full detail. In fact, the foregoing is only a preface of what I want to talk about.

For ages past Satan has been robbing mankind of both "soul and body," and when the churches, schools, and all good people, especially the *mothers* of humanity, have talked of putting him in a "dark cellar," he has laughed us to scorn. But the "mill of the Gods" keeps on "grinding" and just now on this 28th day of January, 1919, the papers tell us that 35 States have ratified. You know all about it, dear friends. Yes, when this reaches you, far more than I do.

John Barleycorn is killed, for the U. S. and the prospect is fair for the *whole wide world*. Will Satan give up and "be good"? I fear not; see our last text. He may finally give up on "booze," but the whole world had better be on the watch for his next move. I think I have an inkling of what it is to be, from an article in *Leslie's Weekly* for Jan. 11. Here is the heading:

HOW TOBACCO HELPED TO WIN THE WAR.

The whole article seems planned with wonderful (Satanic?) ingenuity to deceive "even the very elect." I give below three extracts from different parts of the article:

According to the men at arms of the forces which brought the Prussian monster to its knees, particularly the Americans; their officers, from the highest



For what is a man profited if he shall gain the whole world, and lose his own soul?—MATT. 16:26.

It is better for him that a millstone were hanged about his neck and he were cast into the sea.—MARK 9:42.

As a roaring lion, walketh about, seeking whom he may devour.—I PETER 5:8.

to the humblest; the physicians, nurses, chaplains and stretcher-bearers who labored to save the wounded and minister to the dying; the women of the Red Cross, the secretaries of the Y. M. C. A. forces, and the representatives of all the other philanthropic agencies which labored for the men battling for the cause of humanity — tobacco was one of the most pronounced blessings of the struggle, one of the

greatest factors in preserving the morale of the troops.

For December last the Y. M. C. A. ordered 70,000,000 cigarettes and nearly 3,000,000 cigars to supply the demand for "smokes" among the American Expeditionary Forces in Europe.

There may be some who believe that soldiers fight best if supplied with liquor before battle, but I know to the contrary. Tobacco was all our boys needed, and "smokes" played a mighty large part in beating the greatest military machine in the history of the world.

From the above it would seem not only "physicians, nurses, and chaplains," but even the Y. M. C. A. endorse the cigarettes. Our readers know the last is not true, from what I have said heretofore.

With the progress prohibition is now making the writer admits—in fact, he is *forced* to admit that "booze" doesn't help soldiers to fight, but we have abundant information that the cigaret habit is harder to break away from than alcohol. Finally, dear friends, even if it could be proved that cigarets helped us to conquer *Germany*, how much is gained should it transpire we have hanged a *still bigger* "millstone about our necks," and about the necks of our soldier boys just in the flower of their youthful manhood.

FROST AND FREEZING IN FLORIDA, ESPECIALLY SOUTHWEST FLORIDA.

As there has been much discussion in regard to Florida winters, not only in regard to frost, but as to whether any part of the State is absolutely "frostless," I am sure the letter below, from such *excellent authority*, will be read and studied by many people. In the Reasoner catalog (see A. I. R. special notices in March issue) occurs the following: "All parts of Florida are subject to frost in a greater or less degree —there is no such thing as a "frost-line."

Dear Mr. Root:—In reading January GLEANINGS last night I see you (page 48) have made a serious error in notes on cold weather (Dec. 9th writing),

and so I am giving you herewith the list of *main* cold spells of the past 24 years:

Dec. 27, 1894, coldest ever known here, 18½ degrees; Feb. 8, 1895, (six weeks later, making a *double freeze*), 20 degrees; Feb. 14, 1899, 20 degrees; Nov. 28, 1903, 26 degrees; Jan. 26, 1905, 21 degrees; Dec. 1, 1909, 23 degrees; Dec. 4, 1910, 28 degrees.

Here follows six years of *unprecedented* freedom from cold, the longest spell of open winters in memory of *oldest inhabitant, including myself!* Tropical growth unhurt and tropical trees reached great size. Feb. 4, 1917, 20½ degrees; Dec. 10, 1917, 23 degrees; Jan. 4, 1918, 26 degrees.

Bradentown temperatures were 1 to 2 degrees warmer. Oneco is far from water protection, you know.

No serious December freeze in 1917, Dec. 10 only 28 degrees here.

Yours truly,
E. N. REASONER.

Oneco, Fla., Jan. 3, 1919.

In regard to the above, I happened to be in Florida during the *awful freeze* first mentioned. I got so tired of seeing frozen oranges, I pushed on down until I came to Bradentown. Here for the first time I found the fruit unharmed, and I happened to visit the Royal Palm nurseries when they were working night and day to get steam pipes installed to save the valuable plants. On Dec. 9, 1917, I found ice on the pans of water for the poultry, and when I wrote as I did I thought it was at *that time*, that the neighbors and "the oldest inhabitant" said it was "the coldest spell in 25 years." Friend Reasoner's letter illustrates how we forget.

On receipt of the letter I wrote as follows:

"I would be exceedingly glad if you could give us something about protection from frost. We have just tried throwing a furrow of soil over some potatoes, and it did harm rather than good. A covering of burlap sacks, to hold the frost up off the plants, has done most good for us. A wooden box is O. K., but tin pails or pans "no good." Newspapers are good, but a little soil must be put on the corners to prevent being blown away. A. I. ROOT."

Below is his reply:

Regarding cold last winter; the first light freeze Dec. 10th, temperature 28 degrees for a short time, would have made ice if water was shallow in open air without any cover or protection.

The Jan. 4th freeze, temperature 26 degrees, made much more ice.

In protecting plants it is necessary to provide a slight air vent at the *top* of any covering, whether paper, cloth or other material, so that air circulation is possible; otherwise the plants inside will freeze if the weather is at all cold. The more severe the freeze, the more absolutely necessary becomes the air vent. We prefer to bank trees or any perennial plants with soil, then stand branches of pine or anything with the foliage on, around the plant or tree, and tie or wire it steady; we stick the branches down in the ground, using a crowbar or piece of pipe to make the holes.

The pine is best because the needles stay on all

winter and thus form a permanent cover for several weeks, and they are open enough so the warmth of the ground can rise.

We never use paper or burlap except over plants for a slight protection.

EGBERT N. REASONER.

Oneco, Fla., Jan. 11.

Today, Feb. 5, nothing has been harmed this winter, except perhaps a few lima beans and some very tender plants. Gardens nearer the water not harmed at all.

THE VOLUNTEER PLANTS OF THE SOY BEAN.

I mentioned in our journal about the work that my good friend Jacob McQueen, Baltie, Ohio, had done in the way of developing nitrogen bacteria for legumes. Among other things I asked him if plants



The soy-bean plant showing nitrogen-gathering nodules on the right.

grown on the same ground the next season would show the nitrogen nodules without any further introduction of bacteria. He said it would last for years. Now, a year ago last summer we had some very fine soy beans growing in a particular part of our garden. Last spring quite a few volunteer shoots appeared, and they were allowed to grow. When fair time came I pulled up

several and carried them over to the fair. The picture on preceding page gives you a single specimen.

As the above plant grew in our hard stiff clay soil, probably a great many of the nodules were torn off as I pulled it up. Those remaining, as shown above, indicate what they look like. Some of them have nodules the size of beans.

COW'S BUTTER COMPARED WITH "BUTTER" FROM OTHER SOURCES.

We clip the following from the *Rural New Yorker*, omitting the picture of the two rats:

LIFE IN BUTTER FAT.

The chemists at the Wisconsin Experiment Station are doing some fine work in butter investigations. They have found that milk and its products contain a principle which is absolutely needed to promote growth in animals. This principle is found in alfalfa hay and other plants, but is not found in grains or most vegetable oils. Some remarkable experiments have been worked out in these demonstrations. Fig. 152 shows two rats. Both were fed on "balanced rations" which contained sufficient protein and mineral matter. The larger rat was given butter fat, while the smaller one received cottonseed oil. This one failed to grow, while we see by comparison what happened to his butter-fed companion. Among other things indicated by these remarkable discoveries is the fact that pure butter has a food value in excess of its actual chemical analysis. Oleo and other substitutes cannot compare with butter as a necessary and healthful food—especially for young people where growth is required.

I find quite a number of people, even here in the North, who use butter said to be made from coconuts, or perhaps other nuts as well as peanuts and cottonseed oil; and they, perhaps like myself, have not noticed very much difference in regard to the amount of *nutrition*; but if the *Rural* is right about it we had better pay the extra price and use the real butter. When the price gets away up during these war times, we can each and all get along with a little less.

THE TOBACCO HABIT; BY ONE WHO KNOWS

WHAT HE IS TALKING ABOUT.

I want to tell you, Mr. Root, that when you made that proposition of a smoker for all who would quit smoking and chewing, I said to myself, "I am going to earn that smoker, and if I ever need it I will send for it." I have earned that smoker, but do not need it yet, as I have three good ones. It was the hardest fight of my life, but I won. I never prayed so hard to God to help me in anything in my life as I did for him to remove that desire I had for the poisonous weed.

Yours very truly,

Clear Lake, Wash. CHAS. W. HOPSECKER.

In view of the above, dear friends, would it not be well to consider the old maxim, "Prevention is better than cure"? Why should any boy or young man of the present age, with the above before his eyes, voluntarily *commence* the use of tobacco?

GEORGE MANIKOWSKIE, THE INVENTOR OF THE ELECTRIC WINDMILL.

I have had considerable to say about this particular friend of mine already; but I think it will be an inspiration to the rising generation of growing boys and young men for me to say a little more, and also to give you a picture of him as below.



My friend George, with an electric dynamo or motor under his arm, preparatory to climbing the windmill tower and belting it to the windwheel.

The particular reason, why I want you to have a good look at my friend George right while he is rushing his work, is because he is a splendid illustration of a young man who has grown up to manhood out under the influence of the blue skies and free air of North Dakota, and especially because he is a type of a young man who neither drinks, swears, nor uses tobacco in any form, and, as a rule, not even tea or coffee. Altho he weighs over 200 pounds he will go up a windmill tower almost as spry as a cat; and his brain and intellect are in keeping with his well-developed body.

North Dakota, you will remember, was one of the first States to demonstrate what prohibition does for a people. As I write, our own State of Ohio is rejoicing that finally, after a long-drawn-out war against intemperance, we too are going to start out growing such specimens of clean young men—clean in *mind* and clean in *body*—as the one in the picture I have given you.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

Buckwheat honey in 120-lb. cases, at 17c per pound. C. B. Howard, Geneva, N. Y.

FOR SALE.—Clover, amber and buckwheat honey in 60-lb. cans. C. J. Baldridge, Kendaia, N. Y.

FOR SALE.—Clover-amber honey in new 60-lb. cans. VanWygarden Bros., Hebron, Ind.

FOR SALE.—Extra good quality sweet-clover honey, packed in new cans. Thos. Atkinson, Cozad, Nebr.

FOR SALE.—1,900 lbs. best extracted honey to settle estate. Make me a bid. Claude Colton, Administrator, Oswegatchie, N. Y.

FOR SALE.—4,000 lbs. of choice amber extracted honey in 10-lb. pails, 6 in case. John R. Brown, 115 Rust St., Eau Claire, Wis.

FOR SALE.—Thirty-two 60-lb. cans choice buckwheat extracted honey at 16c per pound. A. C. Beach, North Rose, N. Y.

FOR SALE.—Extra-good quality clover or white aster honey, packed in 60-lb. tins, two in a case. H. C. Lee, Brooksville, Ky.

FOR SALE.—Choice buckwheat extracted honey fully ripened by the bees, in new 60-lb. cans. O. W. Bedell, Earlville, N. Y.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Clover-amber blend honey in 60-lb. cans, at 24½¢; special price on large lots. Edw. A. Winkler, Joliet, R. F. D. No. 1, Ills.

FOR SALE.—Michigan's Best extracted honey in packages to suit; white clover, raspberry, milkweed, buckwheat.

A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE.—40,000 lbs. carload choice clover extracted honey. Was all left on the hives until after honey flow was over. Put up in new 60-lb. cans. J. N. Harris, St. Louis, Mich.

FOR SALE.—Best quality of sweet-clover honey in 5-gallon cans and barrels. Name highest price you can pay delivered at your address, quality guaranteed. M. C. Berry & Co., Hayneville, Ala.

FOR SALE.—40,000 lbs. of No. 1 extracted clover honey and 35,000 lbs. of aster honey, both of extra-light color, heavy bodv, and fine flavor, in 60-lb. cans. W. B. Wallin, Brooksville, Ky.

FOR SALE.—Clover, heartsease, No. 1 white comb, \$6.00 per case; fancy, \$6.50; extra fancy, \$7.00, 24 Danz. sections to case; extracted 120-lb. cases, 25c per pound.

W. A. Latshaw Co., Carlisle, Ind.

HONEY AND WAX WANTED

Small lots of off-grade honey for baking purposes. C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

WANTED.—Section honey. Correspondence solicited. J. E. Harris, Morristown, Tenn.

Beeswax wanted. Highest prices paid. State quantity and quality. E. S. Robinson, Mayville, N. Y.

WANTED.—Comb and extracted honey, also beeswax. Send samples. C. S. Fryer, 386 Halsey St., Portland, Ore.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations. M. Betancourt, 59 Pearl St., New York City.

WANTED.—White or light amber extracted honey in any quantity. Kindly send sample, tell how your honey is packed and your lowest cash price; also buy beeswax. E. B. Rosa, Monroe, Wisconsin.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston. M. V. Facey, Preston, Minn.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted. Hoffman & Hauck, Inc., Richmond Hill, N. Y.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

FOR SALE

HONEY LABELS.—Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—Good second-hand cans, 60c per case. C. S. Watts, Monticello, Ills.

FOR SALE.—Supers with section-holders. Different sizes. August Nigabower, Iilon, N. Y.

FOR SALE.—Comb-honey supers, 10-frame bee-ware, complete with sections and one-inch starters, 60c each. Used one season. L. W. Mundhenke, East Dubuque, Ills.

FOR SALE.—Six 10-frame Buckeye double-walled hives with supers for 4x5x1½ plain sections. First class condition. A bargain. John I. Nelson, New Market, N. J.

FOR SALE.—Second-hand 60-lb. cans, two to the case, 50c per case f. o. b. New York. Also second-hand maple-syrup cans at 10c each. Hoffman & Hauck, Inc., Richmond Hill, N. Y.

FOR SALE.—Comb foundation at prices that will save you money. Wax worked for cash or on shares. Send for price list. E. S. Robinson, Mayville, N. Y.

FOR SALE.—Good second-hand 60-lb. cans, two to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, Ohio.

FOR SALE.—If you wish to know where to save money on bee supplies send for our new price list. It may be worth your trying. H. S. Duby & Son, St. Anne, Ills.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) Full line of Root's famous goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

BEEKEEPERS OF THE NORTHWEST! Order ROOT Supplies from George F. Webster, Sioux Falls, South Dakota.

FOR SALE.—50 sets 10-frame ventilated metal covers and bottom boards, 80c per set.
James McKee, Riverside, Calif.

FOR SALE.—**SUPERIOR FOUNDATION**, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

FOR SALE.—One-half dozen 10-frame supers, nailed and painted, new, without sections or foundation, A. I. Root Co. make, \$1.50 each.
Mrs. Wm. Jones, Fleming, R. F. D. No. 2, Ohio.

FOR SALE.—30 supers full foundation, 20 supers drawn combs; 20 supers empty frames. No disease. All 8-frame size and A. I. Root Co. goods.
H. D. Hopkins, Otterville, Mo.

FOR SALE.—Two extractors, uncapping-cans, honey tanks, extracting outfit with supers, hives in flat. Bargain. Would take bees, queens, or honey.
The Liberty Press, Box No. 224, Shenandoah, Ia.

FOR SALE.—Good second-hand 60-lb. honey cans, two to the case at 60c per case, f. o. b. Milwaukee. Terms cash with order.
E. R. Pahl & Co., 120 Huron St., Milwaukee, Wis.

FOR SALE.—150-section shipping cases nailed up with glass front holding 20 4x5 plain sections each, 20c each; also a few second-hand 8-frame hives and supers at less than half price.
The Hyde Bee Co., Floresville, Texas.

FOR SALE.—Power sprayer, new, complete, never been used, well-known make, guarantee first-class condition, hose and spray gun; freight paid your station, \$279.
Hillcrest Fruit Farm, Washington, Ind.

FOR SALE.—Mr. Beekeeper of Alabama, Florida, Georgia, Louisiana, Mississippi, and Tennessee, send me a bill of your wants of bee supplies and let me make you good prices on the same.
M. Bates, Greenville, R. D. No. 4, Ala.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Bee-ware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE.—100 10-frame L. bodies, no frames, 50 Danz. bodies with hanging frames for extra supers; 50 Danz. supers for 4x5x1 $\frac{3}{8}$ sections complete without sections; 100 or more reversible bottoms 10-frame; 175 8- and 10-frame covers, some excelsior, some double covered with galvanized iron and asphalt roofing. All Root and Falconer goods, some used but one season; also have some hand-made bodies we'll make and in good condition and several 8-frame Root goods. Many of these supplies can not be shipped before May 20 as they now contain bees. Am changing to larger hives.
Chauncey E. Kelly, Halcott Center, N. Y.

FOR SALE.—We offer for sale the following slightly shopworn goods which are of standard make and as good as new for all practical purposes, at the following reduced prices: 50 10-fr. Dov. Supers Style N, for 4 $\frac{1}{4}$ x4 $\frac{1}{4}$ x1 $\frac{1}{2}$ Plain Sections, complete with inside fixtures, in crates of 5, \$3.00 per crate; 50 Ship Cases for 3 $\frac{3}{8}$ x5x1 $\frac{1}{2}$ Plain Sections, in one crate, \$10.00 per crate; 10,000 4 $\frac{1}{4}$ x1 $\frac{1}{2}$ 2 Side Sections, \$6.50 per M.; 10,000 4 $\frac{1}{4}$ x1 $\frac{1}{2}$ 16 2 Side Sections, \$6.50 per M.; 15,000 4 $\frac{1}{4}$ x1 $\frac{1}{2}$ Plain Sections, \$6.00 per M.; 10,000 4x5x1 $\frac{3}{8}$ Plain Sections, \$6.00 per M.; 25,000 3 $\frac{3}{8}$ x5x1 $\frac{1}{2}$ Plain Sections, \$6.00 per M.; 5,000 4 $\frac{1}{4}$ x4 $\frac{1}{4}$ x1 $\frac{1}{2}$ Plain Grooved Sections, \$6.00 per M.; 20,000 4 $\frac{1}{4}$ x4 $\frac{1}{4}$ x1 $\frac{1}{2}$ Plain Sections, \$6.00 per M.; 1,000 4 $\frac{1}{4}$ x1 $\frac{1}{2}$ 1 Side Open Sections, \$6.00 per M. Prices above are net, cash with order. Write today, sending us your order. These goods are a real bargain.
Dadant & Sons, Hamilton, Ill.

FOR SALE.—500 extracting combs, wired, Hoffman frame size. J. Garfield Fuller, Tulley, N. Y.

AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the **AUTOMOBILE DEALER AND REPAIRER**; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline-engine repairs. \$1 per year. 15 cents per copy. Canadian subscriptions, \$1.50. Postals not answered. Charles D. Sherman, 107 Highland Court, Hartford, Conn.

POULTRY

S. C. Brown Leghorns, good baby chicks, \$15.00 per 100; \$7.75 per 50; \$4.00 per 25. Order from this advertisement. Safe arrival guaranteed. Circular free.

H. M. Moyer, Boyertown, Pa., R. F. D. No. 3.

HATCHING EGGS.—Plymouth Rocks, all varieties; Anconas and Rouen ducks. Illustrated catalog, 3 cents. Sheridan Poultry Yards, R. D. No. 12, Sheridan, Mich.

WANTS AND EXCHANGE

WANTED.—Brood-foundation mill.

W. A. Latshaw Co., Carlisle, Ind.

WANTED.—Good second-hand two-frame honey extractor.

B. H. Carson, Middleport, Ohio.

WANTED.—Second-hand queen-excluders free from disease.

Paul Weber, Wathena, Kans.

WANTED.—Hives, supers, and parts; Alexander or Boardman feeder.

Edwin Cruttenden, Crescent Beach, Conn.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax.

Superior Honey Co., Ogden, Utah.

WANTED.—250 colonies, or less, of bees. Name lowest cash price, style of hive, etc.

A. W. Smith, Birmingham, Mich.

EXCHANGE.—550 Gleanings, beginning in 1876. A library of bee lore. Correspondence solicited.

W. H. Kerr, Crawfordsville, Ind.

EXCHANGE.— $\frac{1}{4}$ -H. P. motor with speed control, 110 volt, perfect condition, for automatic hand extractor.

C. C. Gray, Quincy, Ind.

WANTED.—Thirty 2-lb. packages of bees with queen. April 20 delivery at \$3.00 per package.
Geo. Herrick, 11225 Vernon Ave., Chicago, Ills.

WANTED.—Used hives and supers, foundation mills, extractors, bees, and bee equipment. State lowest cash price wanted.

W. A. Latshaw Co., Carlisle, Ind.

WANTED.—To buy, between 300 and 500 colonies of bees. Locations must go with them. Give full particulars in first letter. Address
357 P. O. Box No. 67, Rizby, Idaho.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts., a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 38c cash, 40c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival.

The A. I. Root Co., Medina, Ohio.

WANTED.—An apiary, by two brothers, single, abstiners, well educated and of many years' experience with bees; also poultry and orchard work, either to rent or work on shares. Would consider buying and paying \$500 cash down, the rest on time. Address

F. L., 1612 Larimer St., Denver, Colo.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1919 catalog. We will buy your share of the wax for cash or will work it into foundation for you.

Dadant & Sons, Hamilton, Illinois.

REAL ESTATE

FOR SALE. Will sell cheap $5\frac{1}{2}$ acres of ground and 100 stands of bees. Write for particulars.

W. E. Gray, Wyoming, Ill.

BEE RANCH FOR SALE.—In the famous clover belt of Missaukee County, Mich., located 12 miles east of Lake City. Modern outfit for extracted honey. 140 good, strong healthy colonies; 320 supers extracting combs; 235 supers with frames all ready for foundation. Power extractor, engine, honey pump, tank with float, large capping tank, all in perfect order. Peterson capping melter with complete outfit, No. 1 wax rendering outfit, steam heat, good steam boiler in arch in heating room, 14x24 wintering cellar with fine portable honey house above, 2 other buildings in bee yard, with everything needed for handling 500 or 400 colonies. 160 lbs. brood foundation and hundreds of other articles to go with the outfit. 30 acres good land, small house, stable, 1 span horses, etc., etc. Room for outyards in good places. If you want a No. 1 outfit in first class location come and see this. Price \$3,000. Reason for selling, age and unable to work.

O. H. Townsend, Lake City, Mich.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens.

W. G. Lauver, Middletown, Pa., R. D. No. 3.

FOR SALE.—Three-band Italian queens.

W. T. Perdue, R. D. No. 1, Ft. Deposit, Ala.

Well-bred bees and queens. Hives and supplies.

J. H. M. Cook, 84 Courtland St., New York.

FOR SALE.—1919 Golden Italian queens, price list free. Write, E. E. Lawrence, Doniphan, Mo.

Queens on approval. Bees by package or colony.

A. M. Applegate, Reynoldsville, Pa.

Golden Italian queens, untested \$1.00 each, six for \$5.00.

E. A. Simmons, Greenville, Ala.

QUEENS I will have, but no bees by pound or nuclei.

J. B. Hollopeter, Rockton, Pa.

PHELPS' GOLDEN QUEENS will please you. Mated, \$2.00. Try one and you will be convinced.

C. W. Phelps & Son, Binghamton, N. Y.

Leather-colored Italian queens, tested, to June 1st, \$2.00, after, \$1.50; untested \$1.00, \$1.00 per dozen.

A. W. Yates, 15 Chapman St., Hartford, Conn.

FOR SALE.—Bright Italian queens at \$1.00 each, \$10.00 per doz. Ready April 10. Safe arrival guaranteed.

T. J. Talley, R. D. No. 4, Greenville, Ala.

THREE-BAND Italians only. Untested queens, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00. H. G. Dunn, The Willows, San Jose, Calif.

"She suits me" Italian queens, \$1.15 each from May 15th to Oct. 15th; 10 or more, \$1.00 each.

Allen Latham, Norwichtown, Conn.

FOR SALE.—Indianola Apiary offers Italian bees and queens; tested, \$1.50; untested, \$1.00.

J. W. Sherman, Valdosta, Ga.

FOR SALE.—Italian queens, hives, and supplies. Save money.

R. Kramske, 1104a Victor St., St. Louis, Mo.

FOR SALE.—200 colonies in 10-frame Langstroth hives in good shape.

Henry Hastings, Kenton, Rt. No. 9, Ohio.

When it's **GOLDEN** it's Phelps'. Try one and be convinced. Virgins, \$1.00; mated, \$2.00.

C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Golden Italian queens ready April 15; \$1.00 each; \$10.00 per dozen.

W. W. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—Three-band Italian queens ready June 1. Untested, each, \$1.00; 12, \$10.00; 100, \$80.00. Satisfaction and safe arrival guaranteed.

A. E. Crandall & Son, Berlin, Conn.

GOLDENS THAT ARE TRUE TO NAME. Untested queens, each, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00.

Garden City Apiaries, San Jose, Calif.

FOR SALE.—25 colonies of bees, 10-frame hives, metal top, wired frames, extracting supers, \$12.50 each. No disease.

S. H. Burton Apiaries, Washington, Ind.

FOR SALE.—Pure-bred Italian queens; also a few hundred pounds of bees. Queens ready April 15. Orders filled promptly or money returned.

O. P. Hendrix, West Point, Miss.

FOR SALE.—Business-first queens. Laying untested queens, \$1.00 each; select untested, \$1.25; tested queens, \$2.00; select tested, \$2.50. Price list for asking. M F. Perry, Bradentown, Fla.

FOR SALE.—Leather-colored Italian queens, untested \$1.00 each, from May 15th. Guaranteed safe arrival and no disease.

J. S. Morales, Brunswick, Ga.

FOR SALE.—Golden Italian queens of an improved strain; the bee for honey, hardiness, gentleness, and beauty. Untested, \$1.00; tested, \$2.00.

Wallace R. Beaver, Lincoln, Ill.

FOR SALE.—Good Italian queens, tested, \$1.50; untested, \$1.00; 1-lb. package, \$3.00; 2-lbs., \$5.00; nuclei, 2-frame, \$4.00; 3-frame, \$5.50.

G. W. Moon, 1904 Park Ave., Little Rock, Ark.

FOR SALE.—About May 1 some 250 colonies Italian bees of fine honey-producing stock, suitably located, free from disease, and at reasonable prices. A fine, mild, healthful climate. Write for particulars.

O. E. Milam, Moore, Texas.

BEEES AND QUEENS. When you can't get them from others you can from us. 1-lb. pkg. bees, \$2.00; 2 lbs., \$3.75; queens, \$1.00 each, \$11.00 per doz. Good stock. No disease. Order quick.

Pelican Apiary, Box 108, New Orleans, La.

FOR SALE.—Mott's Northern-bred Italian Queens. Untested \$1.00; 12, \$10.00; select tested, \$2.00. List free. Plans "How to Introduce Queens and Increase," 25c. Also Golden Campine eggs; best laying bird out. E. E. Mott, Glenwood, Mich.

FOR SALE.—North Carolina-bred Italian queens of Dr. C. C. Miller's strain of three-band Italian bees. Gentle and good honey-gatherers. May 1st until July 1st, untested, \$1.25 each; \$12.00 per doz.; tested, \$1.75 each; \$18.00 per doz.; select tested, \$2.25 each. Safe arrival and satisfaction guaranteed. L. Parker, Benson, R. D. No. 2, N. C.

BEES FOR SALE.—Pure Italians of Dr. C. C. Miller's strain in standard ten-frame Langstroth hives. Write for price and particulars.
D. E. McDonald, Rutland, B. C., Can.

FOR SALE.—Italian bees in 8- and 10-frame hives. Hoffman and Danz frames wired, full sheets of foundation; also 1-, 2- and 3-fr. nuclei. Henry Shaffer, 2860 Harrison Ave., Cincinnati, O.

FOR SALE.—Golden Italian queens which produce gentle yellow bees, the hardest workers we have known. Untested, \$1.00, tested, \$1.50. Wildflower Apiaries Co., Trust Bldg., Little Rock, Ark.

Three-banded Italian queens and bees by the pound, also nucleus, in Root's shipping-cases, if preferred, or buyer furnish own cages. Send for price list. J. A. Jones & Son, Montgomery, Ala., R. D. No. 1, Box 11a.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey gatherers as can be found; May and June, untested, each, \$2.00; six, \$7.50; doz. \$4.00; tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnetts, Va.

SAVE THAT QUEENLESS COLONY! Introduce a vigorous tested queen. We can supply them by return mail, \$1.50 each. Three-banded Italians only. Queens are healthy and prolific, reared last fall and wintered in four-frame nuclei. No disease.
J. W. K. Shaw & Co., Loreauville, La.

FOR SALE.—A limited number of bees and queens for May delivery from either home apiaries or South Carolina. Safe delivery guaranteed if shipped by express. Parcel post shipments at buyer's risk. We invite correspondence as to details and price. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Three-banded Dr. Miller and Walker Italian queens, ready in May, untested, \$1.25 each; 6 for \$7.00; 12 for \$12.00; select, \$1.50 each; 6 for \$8.00; 12 for \$15.00; tested, \$2.50; select tested, \$3.50 each. Orders filled in rotation. Queen circular and testimonials sent free.
Curd Walker, Queen-breeder, Jellico, Tenn.

Queens from one of Dr. Miller's breeders. Tested, \$1.75 each; \$18.00 per doz.; untested \$1.25 each; \$13.00 per doz. 1-frame nucleus, \$3.00 each; 2-frame, \$5.00 each; 3-frame, \$6.50 each, without queens. We have never had any disease here. Safe arrival and satisfaction guaranteed. We have no package bees to offer and no untested queens except with nuclei. Delivery April 15. Geo. A. Hummer & Sons, Prairie Point, Miss.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.
H. G. Quirin, Bellevue, Ohio.

FOR SALE.—66 colonies of Italian bees, sugarfed in fall, packed in winter cases, 143 supers filled with extracting combs, 4-frame extractor, uncapping can, 4 storing cans, wax press, honey pails, everything in perfect readiness for spring work. If buyer would like to start beekeeping here, would sell or rent land and could have use of honey house. This is an ideal location for bees, only a few minutes walk to station. Sacrifice on account of death.
Mrs. J. F. Orishaw, Hastings, Ont.

FOR SALE.—Since I am unable to care properly for all of my bees this coming season, I am offering for sale 100 colonies of bees in Standard 8-frame Dovetailed hives, Hoffman frames, wired, drawn combs; strong healthy colonies with queen, brood, and honey. These bees have been wintered in the cellar. My apiary has been thoroly inspected and the following certificate issued:
Conesus, N. Y., July 25, 1918.

This is to certify that I have thoroly inspected the apiary of Daniel Trescott this 25th day of July, 1918, and find no disease of any kind. Chas. Stewart, New York Inspector of Apiaries.
D. W. Trescott, Conesus, N. Y.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, \$1.00; mated, \$2.00.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, \$1.25; 12 queens, \$14.00. One pound of bees with queen, postpaid, \$6.00. Safe arrival and satisfaction guaranteed.
M. Bates, Greenville, R. D. No. 4, Ala.

FOR SALE.—Golden Italian queens in May, select tested, \$1.50; tested, \$1.25; untested, 85c; 6 for \$4.75; 12 for \$9.00; select untested, \$1.00; 6 for \$5.50; 12 for \$10.00. No foul brood. No bees for sale.
D. T. Gaster, Randleman, R. D. No. 2, N. C.

QUEENS; BEES BY THE POUND.—Three-banded and Golden. They are hustlers, gentle to handle, cap their honey white, are very resistant to European foul brood. Booking orders now. One-fourth down, balance at shipping time. See large ad for January for prices on bees by the pound. Quote nuclei f. o. b. here, 2-frame nuclei, \$4.50; 3-frame nuclei, \$6.00; 1-frame nuclei with one pound extra bees, \$4.50; 1-frame nuclei with two pounds extra bees, \$6.00; 2-frame nuclei with one pound extra bees, \$6.00. No discount on nuclei. Select untested queens, \$1.50 each; 25 or more, \$1.35 each; tested queens, \$2.50; select tested, \$3.00. Free circular giving details. Neuces County Apiaries, E. B. Ault, Prop., Calallen, Tex.

QUEENS AND BEES FOR SALE.—During April and up to May 10, will sell 5,000 pounds Italian bees in two-pound packages only; also the very finest three-band leather-colored queens reared from 400-pound mothers, produced by Mr. Julius Victor, the well-known breeder. Price of 2-lb. package by parcel post, postage free, delivery guaranteed anywhere in U. S. east of Mississippi River, also to points in Arkansas and Missouri, in lots up to 25 packages, \$4.50 each; \$4.25 for 25 packages or more, without queen. Price of untested queens, \$1.00 each; per doz., \$10.00; tested, \$1.50 each. Add price of queen wanted when ordering bees in packages. Write for prices on large lots. Will give you a square deal and ship your bees the day you desire. There will be a large demand for bees this spring. Let me book your order now. 25 per cent only demanded, the balance when ordered shipped.
Jasper Knight, Haynesville, Ala.

HELP WANTED

WANTED.—Two men with some experience to help with bees the coming season.
B. B. Coggsall, Groton, N. Y.

WANTED.—Good experienced man; also some good helpers. Good chance for willing workers.
Penn Co., Penn, Miss.

WANTED.—A woman to keep house for widower with two children, with chance to learn beekeeping.
1063 Box 3, Burney, Ind.

WANTED.—Two capable young men, clean in body and mind, as students in beekeeping for the season of 1919. For particulars address
E. F. Holtermann, Brantford, Ont., Can.

WANTED.—Men of energy, character, and clean habits, as helpers in our ten apiaries, over 1,000 colonies, crop in 1918 over 100,000 pounds. Best chance to learn. Write immediately, giving age, height, weight, experience, references, and wages, all in first letter. Need one experienced man and students.
E. F. Atwater, Meridian, Idaho.

WANTED.—One experienced man, and students as helpers in our large bee business. Good chance to learn. Modern equipment and outfit, including auto truck, located near summer resorts. Write, giving age, height, weight, experience, reference, and wages wanted.
W. A. Latshaw Co., Clarion, Mich.

WANTED.—For season of 1919, a man to work with bees, 400 colonies. State experience, age, wages, and reference.

J. B. Merwin, Prattsville, N. Y.

WANTED.—Experienced beeman and one helper. Fast workers and able to do heavy work. Prefer young men experienced in handling auto trucks. State all particulars in answering and wages wanted.

Ernest W. Fox, Fruitdale, S. D.

WANTED.—We want to engage a young man or young woman, thoroly experienced in bee culture, to start and manage an apiary, and assist in poultry department meanwhile. Will want to begin with about 50 to 100 colonies this season.

Forrest Ferguson Farms, Dyersburg, Tenn.

SITUATIONS WANTED

If you have good location and need expert help in building up large bee business write to me. Can invest.

R. T. Stinnett, Hillsboro, Ore.

WANTED.—Experienced beekeeper wants employment in an apiary in U. S. or Canada. Send letter, no telegram.

Morris F. Laughlin, Albin, Wyo.

WANTED.—Work for nine months with some extensive apiarist by single man 29 years old with good health and character. Wages expected \$60.00 per month and board.

H. K. Freligh, Ovid, N. Y.

WANTED.—A position as assistant in apiary, by a strong young college woman interested in commercial beekeeping. Ready to begin work at any time.

C. Amelia Winford, 120 Oak Ave., Ithaca, N. Y.

WANTED.—Position by a professional, to work in apiary as an assistant queen-breeder, on any work in large apiary. Southern states preferred. Address J. Richards, Queen-breeder, Gen. Del., Syracuse, N. Y.

WANTED.—Work wanted by Australian expert between April and July 14. Have managed 500-colony apiary and produced 19 tons in one season. Expert queen-rearer (after Doolittle). Reply at once; stating wages. c o 39337 for Rosser, J. H., c o Miss Lahey, 23 Paddington Green, London, W. I., England.

WANTED.—Experienced apiarist wants position. Thirty-three, doesn't use liquor or tobacco; no trifter or quitter, steady and reliable, will work on salary or on share basis; could invest \$300. State best offer in first letter. Location, not particular. Pro-Germans or Catholic save our stamps.

E. W. F., P. O. Box No. 184, Marshall, Minn.

WANTED.—Student having attended winter course in General Agriculture and also special Short Course in beekeeping held at Cornell University this winter is anxious to secure employment in apiary, preferably in New York State. Strong, interested and careful.

H. J. c o Gleanings in Bee Culture, Medina, O.

MISCELLANEOUS.

FOR SALE.—Early tomato plants, 100 by mail, 40c.

J. F. Michael, Winchester, Ind.

FOR SALE.—Progressive everbearing strawberry and St. Regis everbearing raspberry plants at \$3.00 per 100. For other prices write

Nicollet County Nursery, St. Peter, Minn.

PRINTING.—Send your copy for estimate. Work guaranteed. Circulars, Bill Heads, Letter Heads, etc. The Hawthorne Press, R. W. Hopkins, Mgr., Yonkers, N. Y.

E. D. Townsend, the present owner of the *Domestic Beekeeper* bought beekeepers' supplies for the National Beekeepers' Association for several years. He is now buying for the subscribers of the

Domestic Beekeeper at the same low manufacturers' price. Listen now what he has got up his sleeve: Any GLEANINGS subscriber buying five dollars' worth of supplies thru the *Domestic Beekeeper* at catalog price, and sending along an extra dollar to pay for a year's subscription to the *Domestic Beekeeper*, will get in return a rebate check for a dollar, leaving the year's subscription to the *Domestic Beekeeper* absolutely free to you. Of course, if your order for supplies is larger than five dollars, you will get a correspondingly larger rebate check on your order. One of our subscribers got a rebate check of \$40.00 on his order of supplies last month, March. It was just like getting money from home to him, as he sent us the same money he would have had to pay if he had bought thru the regular dealer in beekeepers' supplies. More and more, close buyers of beekeepers' supplies are investigating the buying facilities of the *Domestic Beekeeper*. A word to the wise should be sufficient to cause you to send your next order for beekeepers' supplies to the *Domestic Beekeeper*, Northstar, Michigan.

MASON BEE SUPPLY COMPANY

MECHANIC FALLS, MAINE

From 1897 to 1918 the Northeastern Branch of The A. I. Root Company

Prompt and Efficient Service

BECAUSE—Only Root's Goods are sold. It is a business with us not a side line. Eight mails daily. Two lines of railway.

If you have not received 1919 catalog, send name at once.

850,000 GRAPE-VINES

69 varieties. Also Small Fruits, Trees, etc. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive catalog free. LEWIS ROESCH, Box H, Fredonia, N. Y.

ARE YOU READY For Your Bees to Start Work?

It is good business for you to order early and use up-to-date supplies.

OUR SERVICE

is immediate and personal. Lewis supplies are best. The best is the cheapest. Let us send catalog and quote prices.

Western Honey Producers
DEPARTMENT C
Sioux City, Iowa

SAVE TIME

Freight movements are slow. Long hauls take lots of time. Council Bluffs is centrally located. Save time by ordering your supplies from Council Bluffs.

SAVE ON FREIGHT CHARGES

The freight from Council Bluffs is less than from more distant points.

SAVE MONEY

You can buy supplies cheaper now than you can later. Our March cash discounts will help you save.



THE
KRETCHMER
Manufactur'g Company

DEPARTMENT G
COUNCIL BLUFFS, IOWA

BROOD
REARING
HAS
STARTED



THE
BEES
WILL
NOT
WAIT



ORDER
SUPPLIES
NOW

We Are
General Agents in Michigan
for The A. I. Root Company

This Means That

- From us you get bee supplies of the highest quality.
- Our prices are identical with theirs.
- You get immediate shipping service from the center of Michigan.
- We pay you Root prices for Beeswax at Lansing.
- The Root aim is our aim, that of serving the interests of Michigan beekeepers in the best possible manner.
- We want to send you a copy of our 1919 catalog. A copy of the "Suburban Beekeeper's Outfit" for the asking.

M. H. HUNT & SON
510 NORTH CEDAR ST
LANSING, MICH.

The Best from Others.—Continued from page 246.

past season; and there are still about 80 more colonies of the same strain in the model apiary at the West of Scotland Agricultural College, Glasgow, says A. G. Pugh in the British Bee Journal for Feb. 20. The scheme of restocking with disease-resisting bees is at present being taken up in many parts of England.

* * *

HONEY SHIPPERS FINED.

An attempt to ship 100 tons of honey overseas without conforming to the regulations limiting space to certain produce, says the Australasian Beekeeper, resulted in the conviction, fine, and costs of the two shippers, as well as the forfeiture of the honey, valued at £7,000.

* * *

MARKET CONDITIONS

"We would not advise the shipment of any more old-crop honey at this time. Hold it off the market. Telegraphic reports show the weakness of the present market and the danger of forcing it down by overloading at this stage. If you have unsold honey, keep it until new prices are made."—February Beekeepers' Item.

* * *

DEMUTH'S START IN BEEKEEPING.

George S. Demuth's beginning in beekeeping is briefly mentioned in the American Bee Journal for March. There we find he began beekeeping at the age of 14 years, and that he paid for his first colony by making fires and cleaning the schoolhouse at five cents a day, it requiring 110 days to raise enough money to purchase the first colony.

* * *

PACKAGE BEES BY THE TON.

Two large purchases of package bees is mentioned in the February Western Honeybee—one for a ton of bees and queens as needed to be used somewhere in California, and the other for about four tons, and queens in proportion, these to be shipped out of the State. When the price on a single order for bees runs into five figures it is time to sit up and take notice.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

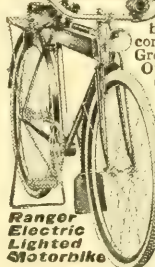
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For new 1919 Book. Save \$25 to \$200 on Gasoline Engines, Manure Spreaders, Cream Separators and other implements. Sold direct from factory. Our 300,000 satisfied customers prove merit of goods and direct selling system. Close shipping points. Mention implement interested in. Write today.

Wm. Galloway Co., Box 767 Waterloo, Iowa



FACTORY-TO-RIDER SAVES YOU MONEY



Buy direct and save \$10 to \$20 on a bicycle. **RANGER BICYCLES** now come in 44 styles, colors and sizes. Greatly improved; prices reduced. Other reliable models also. **WE DELIVER FREE to you on approval and 30 days trial and riding test.**

Our big **FREE** catalog shows everything new in bicycles and sundries. Write for it.

TIRES, lamps, wheels, parts and supplies at **half** usual prices.

Do not buy a bicycle, tires, or sundries until you get our wonderful new offers, low prices and liberal terms. A postal brings everything. **HEAD CYCLE COMPANY Dept. B-153 Chicago**

IRON AGE?

GARDEN TOOLS

Answer the farmer's big questions: How can I have a good garden with least expense? How can the wife have plenty of fresh vegetables for the home table with least labor?

This Hill or Drill Seeder and Wheel Hoe Combined

solves the garden labor problem. Takes the place of many tools—stored in small space.

Sows, covers, cultivates, weeds, ridges, etc., better than old-time tools. A woman, boy or girl can push it and do a day's hand-work in 60 minutes.



Many combinations and prices. Write for free booklet today.

Bateman Mfg Co., Box 20, Grenloch, N. J.

BEE - SUPPLIES

FALCON LINE

We carry the largest supply in our section. Send us your inquiries.

Lowest Prices, Quality Considered

C. C. Clemons Bee Supply Co.
128 Grand Ave. KANSAS CITY, MO.

BEEKEEPERS

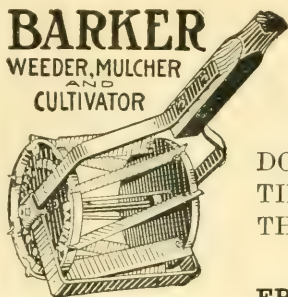
Do not wait until the last minute to order your supplies. Order now.

We carry a complete line of beekeepers' supplies. Send us a list of your requirements for this season and we will quote you our lowest prices.

Send for our 1919 Catalog.

August Lotz Co., Boyd, Wis.

BARKER
WEEDER, MULCHER
AND
CULTIVATOR



Weeds and Mulches In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

BARKER
MFG. CO.
Dept. 10

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

DAVID CITY, NEB.

Gentlemen.— Send me postpaid your free book and Factory-to-User Offer.

BARKER MANUFACTURING CO.

Dept. 10

David City, Nebraska

Name _____

State _____

Town _____

R. R. No. _____

Box _____

IF GOODS ARE WANTED QUICKLY SEND TO ST. LOUIS

Indications just now are very favorable for a good season; but we are, of course, at the mercy of weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

WE CARRY ROOT'S GOODS

and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house. If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods. Promptness in filling orders is the motto here. We also give small orders the same careful attention that is given to large orders. Let us have the pleasure of mailing you our free catalog.

BLANKE SUPPLY & MFG. COMPANY
ST. LOUIS, MO.

BOOKS AND BULLETINS

"Practical Queen-rearing" is the title of a new book of 100 pages on queen-rearing, by Frank C. Pellett of the American Bee Journal. Mr. Pellett has traveled quite extensively over the United States, and has interviewed some of the most extensive queen-breeders of the country. He has given all their different methods with copious illustrations. Besides taking up queen-rearing in particular, he discusses races of bees, the story of the queen and drone, and improvement of stock. Then he takes up equipment for queen-rearing, methods of the different breeders, closing up with a discussion of the very important subject, the spread of disease from the queen-rearing yard. The editor has gone over this work, and, so far as he can see, it is orthodox and correct in teaching. He could not help noting the absolute omission of E. L. Pratt and his methods of raising queens—a man known in former days as "Swarthmore." Next to Doolittle, Mr. Pratt did, perhaps, as much to develop modern queen-rearing methods as any other man in the United States. We are assured by Mr. Pellett that the omission of Mr. Pratt's name, whose methods, in modified form, are seen all thru the book, was unintentional and an oversight.

"Town Lot Poultry Keeping"

Revised and Enlarged—70 Illustrations.



One of the best and most complete books published for the beginner, small breeder or commercial poultry man. *Price only 50 cents.* Flexible Cover \$1.00. With Poultry Item, the big monthly guide for the poultryman, \$1.00. Item, 1 yr. 75c. —4 mos. 25c. Experience not necessary if you have this book and the Item.

POULTRY ITEM, Box 70, Sellersville, Pa.

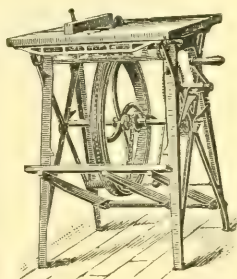
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

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GOOD SEEDS



**GOOD AS CAN BE GROWN
Prices Below All Others**

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.
R. H. SHUMWAY, Rockford, Ill.

\$30.000 WORTH OF Bee Supplies



All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

*Will Take Beeswax in Trade at
Highest Market Price.*

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BANKING BY MAIL AT 4%

DISTANCE is no hindrance to saving money
BY MAIL with this large safe bank, at 4
per cent compound interest.

No matter where you live, send today for a
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MEDINA, OHIO

AROUND THE OFFICE

M. A. O.

I was squoze out of the last Gleanins because I ain't good enough when there aint room for everybody. The highbrows and hifalutins have to have their say whether I do or not. I aint a sayin I care atall, only I hate to have these high snorters a trompin on me any time whatsoever when I don't believe half they say and most of em talkin thru their bee veils. They orter use a smoker on themselves oftener than they do. But seein as how a big advertisement didn't come in the last minute the Miss Assistant Editor calls out to me when passin her writin and disputin den as how I better fill a little space over among the advertisements. I aint proud as I orter be or I'd a told her what she and the mismanagin editor could both do and keep on doin, so I would. But I says, didn't I write up my last biggest trouble for you last month and you didn't print it. And she says go and get it and put it in as it was. So I done it and here it is more'n three quarters true too which is a big average on truth in beekeepin writin. I then about the first of March wrote as follows towit:

• I am in trouble oncet again. In fact, I aint out o trouble much any time. It's just one thing after another as that happens to me continously and right along. If it aint one thing, then it's another thing worse'n the thing afore. It's about all I can stan to have any winter come on and freeze up the fishin complete, but when that last dog-goned cold spell come on last month and froze up my well pump solid, and I broke the chain tryin to get it to resoom I lost my temper some. Before I got control again, it was discovered I had chopped up that pump with a ax to get even. I guess I was het up a good deal and turned on some real language. Anyway, it all led to a good deal of discussion between me and my poor, long-suf-

ferin wife as to whether I had done anythin very smart or not and if I thought I had hurt the low temperature very considerable by knockin the useful old pump to smithereens. This wouldn't have been so much out of the ordinary if somethin else hadn't a happened

right onto the top of it. Accordin to usual program, my conjoogal other half went just a-sailin across the road over to my mother-in-law's to tell her all about my pump action—not omitin any details, you bet. Well, my mother-in-law hadn't any more'n fairly got started in on my general disposishun and

solushun of frozen pump troubles than her favorite old pussy cat, somewhere out by the chicken house, let out the allfiredest combi-

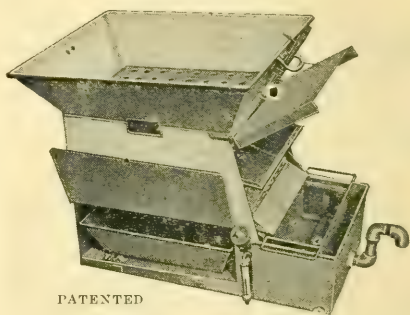
(Continued on next page)



"Help Wanted."

THE SEVERIN

Melter and Separator COMBINED



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Address all communications to

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Your Duty—Do You Know It?

It is to get ready for the coming season and be ready for the first honey flow. This will net you profits. Prepare your bees for a big year and take no chances. Get the best to do with and have the best results.

Our Duty—Do We Know It?

We get the beekeepers ready for the big season. Supply them with the best of everything with which to work and get the best results. Send us a list of your requirements for quotation. TO DELAY MEANS LOSS TO YOU. "Falcon" service cannot be beat. Catalog and Simplified Beekeeping on request.

W. T. Falconer Manufacturing Company
Falconer, New York

"where the best bee hives come from"

"falcon"

nation scream and howl of terrification and real pain you ever heard. That cat was in earnest, she was, and she wanted help, she did. I heard her away over at my happy home and above all the roar of my then surgin thoughts. About one and two-thirds seconds later I saw my mother-in-law and her daughter that is related to me by marriage boil out of the back door and set sail jest awhoopin in the general direction of old kitty's continooin call for aid and sympathy. I suspected in just a hully jiffy what was up. A skunk had been inhabitin under my wife's mother's chicken house all winter, and the night afore I had set a trap there. My mother-in-law said all along she just knew I'd catch her cat if I set a trap there, and she prohibited it complete. She said I needn't try to make her believe my bees was in danger from skunks. So I had set it unbeknownst to her. Accordinly, I instantaneously right away then felt certain that the old cat had found out what I had done and was tellin mother-in-law about it. So I left home and came over to the office right to oncet. That was in the mornin early, and I didn't find oc-cashun to go home for anythin that day till everybody was in bed. Benny Peters dropped into the shop durin that afternoon and told me the old cat was hurt somethin awful and limpin terrible and my people was the maddest he ever seen 'em. That meant I had got to do somethin right to oncet. For the promise of one of my best fish lines and a nickel down, Benny went and got Del Giddin's



"Jest awhoopin."

(Continued on next page.)

450,000 TREES

200 varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 3 sample blackberries mailed for 10c. Catalog free. LEWIS ROESCH, Box H Fredonia, N.Y.

NO CASH REQUIRED WITH ORDER

For Our Guaranteed
FRUIT TREES, SHRUBS,
VINES, PERENNIALS



Write today for our 1919 Catalog
that tells the entire story. Yes,
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"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. THE BEST LIGHT CO.

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IRON AGE

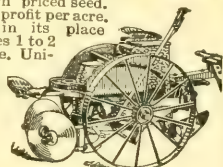
Farm, Garden and Orchard Tools
Answer the farmers' big questions.
How can I grow crops with less
expense? How can I save in plant-
ing potatoes? How make high
priced seed go farthest? The

IRON AGE Potato Planter

solves the labor problem and makes
the best use of high priced seed.
Means \$5 to \$50 extra profit per acre.
Every seed piece in its place
and only one. Saves 1 to 2
bushels seed per acre. Uni-
form depth; even
spacing. We make
a full line of potato
machinery. Send
for booklet today.

No Misses
No Doubles

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QUEENS - ITALIAN - QUEENS

BRED IN ONTARIO FROM DOOLITTLE STOCK



1919 PRICE LIST 1919

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Untested	\$1.00	\$5.50	\$10.00	\$37.50
Select Untested...	1.25	7.00	13.00	50.00



Send us list of your requirements early so as to insure date of delivery. We are booking orders now, 25% down. We clip queen's wings free of charge on request.

RUMFORD & FRETZ :- :- FOREST, ONTARIO

boy to say he set the trap. I got out of it that way (or, rather, am out of it up to yet) only I feel suspicion keeps pointin my way about it. They can't prove nothin, but they keep a generally cool atmosphere around me yet and keep pityin the cat specially strong when I am present in persono. They also keep denyin verbally too that they agree with me as to fixin froze-up pumps, always luggin in somethin about "that mornin poor old kitty got into somebody's trap"—always lookin hard at me just as they bear down specially on that word "somebody's." So I say, I am in trouble again, and I aint likely to be free of it complete till Del Giddin's boy has established himself in my mind as bein entirely dependable and the kind as hangs by the binder. I know he's under pressure. I keep wonderin about him and his dependability a lot.

P. S. and Later.—Since the above was wrote every thin has gone by the board. Giddin's boy let go his agreement and caflummuxed me complete. I aint got no standin with nobody to speak of no more around my domicile, and the old cat at motherinlaw's aint no better as to lameness.

There ain't no particklar moral to these recurrin incidents, except a former one, that it don't pay to get mad and make a everlastin fool of yourself, and a additional one that if you get somebody to lie for you in gettin out of trouble you don't get out much and you keep on worryin a good deal longer.

GIANT FRENCH BEANS

(Lincoln's French Asparagus Bean)

THIRTY inches long. A remarkable vegetable that bears GIGANTIC stringless pods longer than a man's arm, and of delicious, rare, flavor. Not a novelty, but a Century old Oriental delicacy. Produces abundantly anywhere with 90 days growing weather. A valuable companion crop for Beekeepers. Free Bulletin describing this and other superfine seed strains if you mention "Gleanings."

J. A. & B. LINCOLN,
Seed Growers and Importers,
39 South LaSalle Street, CHICAGO, ILLINOIS.

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GARDEN TOOLS

Answer the "war gardener's" big question: How can I produce the most food in spare moments? How meet increased costs and war taxes?

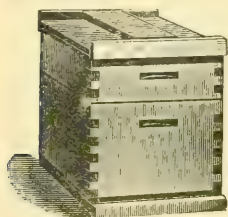
IRON AGE Wheel Plow and Cultivator



Easy to push, fast, thorough, low in cost. Opens and covers furrow for seed and fertilizer. Cultivates wide or narrow rows. Turns soil and covers scratch foods in poultry yards. 30 other Iron Age Combinations. Send for free booklet today, and learn how to garden the modern, easy way.

19-C

Bateman M'f'g Co., Box 208 Grenloch, N. J.



Early-order Discounts will
Pay you to Buy Bee Supplies Now

32 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . .
Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri

QUEENS THAT WILL PLEASE QUEENS THAT ARE BRED FOR BUSINESS

They are hardy, long-lived, gentle, and disease-resisting. They are as good as any and far superior to most—bred from imported stock, which produces a bee that is the best in the world for honey-gathering, and are non-swarmers. They are now giving service in nearly every country in the world. Have your order booked now. All that we require is one-fourth cash and balance at shipping time. We guarantee every queen to reach you in first-class condition, to be purely mated, and to give perfect satisfaction, in the U. S. and Canada.

Prices—April 15 to July 1

	1	6	12		1	6	12
Untested	\$1.25	\$6.50	\$11.50	Tested	\$2.50	\$13.00	\$24.50
Select Untested	1.50	7.50	13.25	Selected Tested	4.00	22.00	47.00

L. L. FOREHAND -:- FORT DEPOSIT, ALABAMA

"Queens of Quality"

The genuine "Quality" kind of 3-band Italians — bred strictly for business. Write for circular.

J. Ivan Banks, Dowelltown, Tenn.

GOLDEN QUEENS.....

After April 1: Untested, \$1.25 each, 6 for \$7.00, or \$13.00 per dozen, or 50 for \$48; also 3-band untested at same price; tested, \$3.00 each, and my very best at \$5.00 each. Satisfaction.

R. O. Cox, Rt. 4, Greenville, Alabama



Established 1885

It will pay you to get our catalog and order early.

Beekeepers' Supplies

The Kind You Want and The Kind That Bees Need.

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Bees-wax wanted for supplies or cash.

John Nebel & Son Supply Co.

High Hill, Montgomery Co., Mo.

BEES We furnish full colonies of Italian bees in double-walled hives, single-walled hives, and shipping boxes; 3-frame nucleus colonies, and bees by the pound. Tested Italian queen, \$2.00. Price list free.

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Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

Dixie Beekeeper

The first edition of this 32-page Bee Journal is now out, covering the whole Dixieland, containing the very best of our industry has to offer here. We ask for your subscription one dollar a year. Sample copy free.

Dixie Beekeeper, Waycross, Ga.

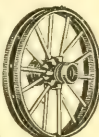
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High or low wheels—steel or wood—wide or narrow tires. Steel or wood wheels to fit any running gear. Wagon parts of all kinds. Write today for free catalog illustrated in colors.

ELECTRIC WHEEL CO., 23 Elm Street, Quincy, Ill.



HAVE YOU PLACED YOUR ORDER

for summer delivery? Or are you going to let some one get ahead of you? Estimate the number of queens you will need, get in your order now for June and July delivery. Many will be disappointed in the delivery of their queens this season, but if you get your order in now for

FOREHAND'S THREE-BANDS

the thrifty kind, the bees that have been tested for 27 years, the kind that are surpassed by none but superior to many; you will neither be disappointed in the delivery nor in your honey crop. Only one-fourth cash with order. We guarantee pure mating and perfect satisfaction. Also safe arrival in the United States and Canada.

PRICES

AFTER JUNE 1.	1	6	12	AFTER JULY 1.	1	6	12
Untested	\$1.25	\$6.50	\$11.50	Untested	\$1.10	\$5.50	\$10.00
Select Untested	1.50	7.50	13.25	Select Untested	1.25	6.50	11.50
Tested	2.50	13.00	24.50	Tested	2.25	12.00	22.00
Select Tested	4.00	22.00	41.00	Select Tested	3.50	19.75	37.00

W. J. FOREHAND & SONS -:- FORT DEPOSIT, ALA.

SAFETY GUARANTEED

WE will now book orders for our superior Italian bees and queens for spring delivery. There is absolutely no foul brood here and never has been; the closest we know of is over two hundred miles distant. You absolutely can't get it from buying bees from us. We do not know of anyone having perfect success shipping bees in packages, so are offering you as many bees as you wish to the package, shipped on a comb of brood which we guarantee to hatch out over a pound of bees. We guarantee safe arrival and satisfaction in every respect. This manner of shipping will eliminate loss in transit, as you know that your bees will arrive in the best of condition, that you will have no trouble in getting them from the packages to the hives, and that you can leave them knowing they will not swarm out. If the weather is bad on arrival, you won't have to nurse them as you will packages. You can safely figure on having as many colonies as you order packages. They will be gaining in numbers from the time they are packed until after your honey flow. If you want something sure, try them and be certain of your honey crop. If there was any chance of giving you foul brood we wouldn't offer them to you. The comb will be worth at least 45c to you. We guarantee our bees to be as good as can be had. We are not going to book more business than we can deliver promptly.

WE PRODUCED 12,348 QUEENS LAST YEAR

IF ANY OTHER QUEEN-BREEDER IN THE WORLD PRODUCED MORE THAN THAT AND WILL GIVE SATISFACTORY EVIDENCE THAT HE DID, WE WILL TAKE THIS OUT. Satisfactory service and SUPERIOR bees and queens did it. Quality and service did it. Next year we will tell you what we did this year. Comb of brood guaranteed to hatch more than a pound of bees, \$3.00. Additional bees at \$2.50 per pound. Any quantity you want. These packages cannot be sent by mail. Satisfactory goods or your money back and that right now.

PRICES OF QUEENS.

	Before June 15th			After June 15th		
	1	12	50 or more	1	12	50 or more
Untested	\$1.50	\$15.00	\$1.10	\$1.00	\$11.00	\$.90
Selected Untested..	2.00	20.00	1.50	1.50	15.00	1.30
Tested	3.00	33.00	2.50	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

Prices of Dr. Miller's Queens

	Before June 15th			After June 15th		
	1	12	50 or more	1	12	50 or more
Untested	\$1.80	\$18.00	\$1.25	\$1.25	\$13.25	\$1.10
Tested	3.00	33.00	2.50	2.00	22.00	1.75

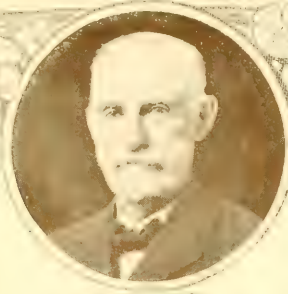
Breeders, \$5.00, \$10.00, and \$15.00.

We have a full line of Root's Goods and guarantee to fill all orders within three days after receipt and all mail orders the same day received. Try us on sections, foundation, smokers and all small orders by mail.

A full line manufactured from Cypress, the Wood Eternal, which we guarantee to please you. Solid one-piece covers made from the best wood in the world, without a crack or a crevice, at the price of other wood covers. Beeswax wanted. Send for catalog.

The Penn Company, Penn, Miss.

What is Sweeter than Honey?



A. I. ROOT

The Man behind the Root Line

Root's Goods Go Round the World

In One Week during the month of February,
1919, orders or inquiries for Root
supplies were received from the following countries:

China	France	Portugal
Japan	Dutch East Indies	Greece
Australia	Guatemala	Siberia
East Africa	Spain	Switzerland
India	Hawaii	Italy
British Isles	New Zealand	West Indies
Central and South American Countries		

Such worldwide distribution is the result of a name and reputation built up on the solid foundation of business integrity, fair dealing, unsurpassed service, and 50 years of experience in making goods of highest quality.

THE A. I. ROOT COMPANY, MEDINA, OHIO

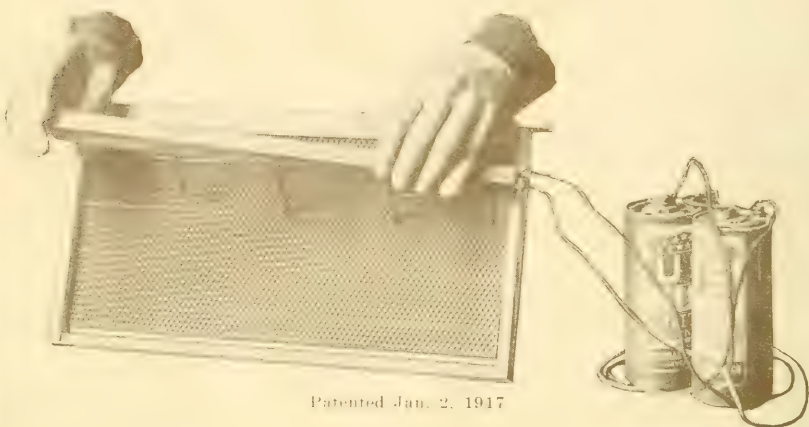
New York Chicago Philadelphia San Francisco Los Angeles
St. Paul Indianapolis Norfolk

Perfect Worker Comb

can only be secured by using full sheets of bee comb foundation and making certain that frames are properly wired and that the wires are well imbedded into the foundation.

The Electric Imbedder

Operated with two dry cells or with a small transformer in connection with your city current. imbeds the wires perfectly. The current, passing thru the No. 30 wire, heats it so that it melts its way into the foundation.



Patented Jan. 2, 1917

The wire retains its heat long enough so that the hot wax closes over it, and the wire is actually "cemented" into the foundation with no chance to pull loose. With a little precaution, frames so wired may be transported from the home yard to outyards in a car or light delivery truck. This would be inadvisable with frames having wire imbedded with the ordinary spur imbedder. ¶ The use of the electric imbedder will increase your proportion of perfect worker combs.

Prices Are as Follows:

		Mailing Wt.
Electric Imbedder without batteries.....	\$1.25	1 pound
Electric Imbedder with two dry cells.....	2.25	6 pounds
Transformer for 60 cycle 110 volt current.....	3.50	2 pounds

If you are electrically inclined, a very satisfactory transformer may be made at home. Directions free with each imbedder. Order of your dealer or of

Dadant & Sons, Hamilton, Ills.

Gleanings in Bee Culture

Vol. XLVII

MAY 1919

No. 5



Beekeeping High Up In California Mountains.

We are always in the market for HONEY and BEESWAX.
Do not sell until you have seen us.
We will pay you spot cash for any thing you sell us.
Get our prices on cans and cases.

Los Angeles Honey Co.

633 Central Bldg., Sixth and Main Sts.
Los Angeles, California
Telephones; Home 10419, Main 5606

Dixie Beekeeper

The first edition of this 32-page Bee Journal is now out, covering the whole Dixieland, containing the very best our industry has to offer here. We ask for your subscription one dollar a year. Sample copy free.

Dixie Beekeeper, Waycross, Ga.

Beeswax Wanted

In big and small shipments to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1918. We are paying higher prices than ever for wax. - We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. Big catalog free.

Carl F. Buck

The Comb-foundation Specialist
Augusta, Kansas
Established 1899

BEEKEEPERS

Do not wait until the last minute to order your supplies.
Order now.

We carry a complete line of beekeepers' supplies. Send us a list of your requirements for this season and we will quote you our lowest prices.

Send for our 1919 Catalog.

August Lotz Co., Boyd, Wisconsin

"Griggs Saves You Freight"

TOLEDO

Do you realize, Mr. Beeman, that the first of March has passed? June will soon be here with its usual hustle and bustle for **Bee Supplies.**

Why not send us your order now and get the goods wanted? Don't delay. A list of goods wanted, brings prices back by return mail.

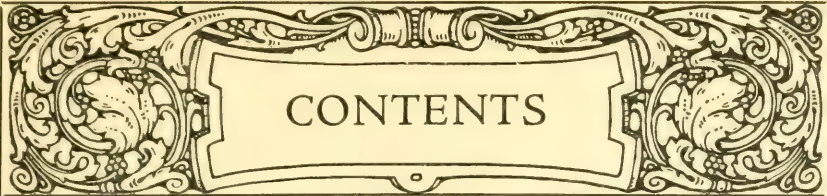
BEESWAX

We use large quantities. Cash or in exchange for supplies.

Free catalog ready to mail.

S. J. GRIGGS & CO.,

Dept. No. 25 Toledo, Ohio
"Griggs Saves You Freight."



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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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Editor Home Dept.

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Assistant Editor

H. G. ROWE
Managing Editor

HERE IS A REPRODUCTION OF Muth's New Home in Cincinnati



Anticipating the wants of the trade and to meet the demands of our customers, we are now located at Pearl and Walnut Streets, carrying tremendous stocks—making this the largest Honey House in the country.

WHY YOU SHOULD BUY NOW! We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointment if you send your order for bee supplies to MUTH NOW.

MUTH'S ADVANTAGES! We sell at factory prices, **save** you freight and give you the finest bee supplies manufactured.

LEWIS BEEWARE DADANT'S FOUNDATION ROOT'S SMOKERS, EXTRACTORS, ETC.

Our new 1919 catalog sent for the mere asking. Drop us a card now! **OLD COMBS AND CAPPINGS.** Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

WANTED, COMB HONEY. Comb and Extracted Honey find ready sales here. Tell us what you have. We buy beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city come and see us.

THE FRED W. MUTH COMPANY
Pearl and Walnut Sts. "The Busy Beemen" Cincinnati, Ohio

WHAT OTHERS SAY ABOUT SUPERIOR FOUNDATION

Allow us to state that we have never met Mr. Gosvenor, and this testimonial comes to us entirely unsolicited. We have never gone so far as to advertise that the "bees take to ours first," but we are pleased to note that Mr. Gosvenor's bees took to ours first. This verifies our own exhaustive experiments whereby we have proved that any such faculty among the bees is determined entirely by local conditions, such as the freshness of foundation used, the weight of the sheets, the nature of the honey flow, etc. We do claim, however, that our "SUPERIOR" Foundation is not surpassed in quality by any other make,

READ THE FOLLOWING

Nampa, Idaho, Mar. 12, 1919
Superior Honey Co.,
Ogden, Utah.

Dear Sirs:—I am shipping you 62 pounds of beeswax. Please manufacture it into Medium Brood Foundation. I don't want any better than you made me last year, as *my bees took to yours first*. Kindly give me an estimate of number of sheets, as I want to get enough for 100 hives.

Yours truly,
GEO. GOSVENOR.

SUPERIOR HONEY CO., OGDEN, UTAH
(MANUFACTURERS OF WEED PROCESS FOUNDATION)

Bee Supplies

Bee Supplies

Service and Quality

Order your supplies early so as to have everything ready for the honey flow, and save money by taking advantage of the early-order cash discount. Send for our catalog; better still, send us a list of your supplies and we will be pleased to quote you.

C. H. W. WEBER & CO.

2146 CENTRAL AVE.

CINCINNATI, OHIO

HONEY MARKETS

The honey market remains inactive and not much honey is moving in the retail markets at the high prices still asked. In the large centers, there is possibly a little more inquiry about honey. Editor E. R. Root, under date of Apr. 10, sums up the California situation as follows: "The general feeling is that the California crop of honey will be lighter than last year, and, if so, the market will take an upward trend as soon as the fact is confirmed."

The quotations printed below reflect the general condition of the market:

U. S. Government Market Reports.

HONEY ARRIVALS SINCE LAST REPORT.

Medina, O., Keokuk, Ia., and Hamilton, Ill.—No arrivals reported.

SHIPPING POINT INFORMATION.

San Francisco, Calif.—Too few sales to establish market.

Los Angeles, Calif.—Supplies exhausted. No sales reported. Continued dry weather indicates probable light yield of new crop sage honey.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the price at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding two weeks. Prices represent current quotations.)

Minneapolis.—Supplies liberal. Demand and movement slow. Sales direct to retailers: comb, market weak, prices lower, western fancy white, 24-section cases, \$7.25. Extracted: market steady, no change in prices. Western 60-lb. cans, fancy 20-23c per lb.

New York.—Arrivals: 387 cases California, incomplete, 278 barrels West Indies, 31 barrels Mexico. Exported: To Belgium 198 barrels; to Holland 10 barrels; to France 480 cases, 30 barrels; to Denmark 28 barrels, 220 cases, 20 kegs; to England 500 cases. Supplies liberal. Demand and movement slow. Sales to jobbers: extracted, New York, per lb., buckwheat 11-14c, clover 17-20c; Cuban and Porto Rican \$1.65-1.90 per gallon. California, per lb., light amber 16-17c, white 18-20c. Beeswax, demand and movement moderate; per lb., dark 35-37c, light 38-40c.

Denver.—No arrivals, supplies liberal. Sales to jobbers, demand and movement slow. Extracted, white, 17-20c per lb. Beeswax: cash to producer, light, 36c per lb.

Philadelphia.—No arrivals since last report. No demand or movement. No sales reported.

St. Paul.—Supplies liberal. Demand and movement slow, market weak, prices lower, very few sales. Sales direct to retailers: comb, western, fancy white, 24-section cases \$7.25. Extracted, western fancy, 60-lb. cans 24-25c per lb.

Cleveland.—No arrivals. No demand or movement, no sales.

Chicago.—No carlot arrivals, receipts moderate. Sales to jobbers: extracted, demand poor, movement draggy, market weak; white No. 1, 17-20c per lb., in small lots 22-25c, amber 17-19c. Comb, demand active, market firm; No. 1, 24-section cases \$6.50-7.00, dark broken \$3.50 up. Correction: Last report should have read, "Demand and movement slow for extracted, good for comb," instead of the reverse as issued. Beeswax, demand and movement moderate, market dull, dark 37½-40c per lb.

Kansas City.—No arrivals since last report. Supplies moderate. Demand slow, movement draggy, market dull, prices slightly lower. Sales to jobbers: comb, No. 1 light, 24-section flat cases Colorado \$6.50-7.00, Missouri \$7.50-8.00. Extracted, Colorado, 60-lb. cans 18-21c per lb. Beeswax, 30-35c per lb.

Cincinnati.—No arrivals. Supplies liberal. Practically no demand or movement. No sales reported. Beeswax, supplies light, no sales reported.

St. Louis.—No arrivals, supplies light, market weak, demand and movement slow. Sales to jobbers: extracted, southern, amber per lb., in barrels

18c, in cans 19-20c. Comb, practically no supplies on market, no sales reported.

EXPORT DISTRIBUTION OF HONEY FROM MARCH 1-10.

Total, 463,951 lbs.; to Belgium, 50,040; to Norway, 55,200; to Sweden, 355,893; to Canada and Newfoundland, 76; to South America, 326; to China, 656; to Hongkong, 160; to all others, 1,600. Corresponding ten-day period, 1918, 319,601 lbs.

Charles J. Brand,
Chief of Bureau.

Washington, D. C., Apr. 15.

General Quotations of Wholesalers.

[These firms are asked to quote the wholesale price they make to retailers. Accordingly their prices must be figured at least one profit higher than the price paid the producer. The large dealers do not quote prices in print that they will pay futrely to producers.]

NEW YORK.—We quote from several of the leading honey dealers in New York City, under date of Apr. 15:

"The market is undoubtedly lower; but it is expected, as soon as peace will be signed, (which will be, I hope, before the new crop comes in) that the demand for shipment abroad will be enough to keep prices at least at their present level. Extracted honey, white, per lb., 16c; light amber in cans 14c, in barrels \$1.80; amber in cans 12c, in barrels \$1.60. Beeswax, 38c."

"The honey market is quiet, offerings are plentiful, but buying is going on from hand to mouth only. Beeswax is steady with a fair demand and almost all arrivals are promptly bought up. Extracted honey, light amber in barrels \$1.70 to \$1.80; amber in barrels \$1.50 to \$1.60. Clean average yellow beeswax, per lb., 35-36c."

"Market dull and weak. Extracted honey, light amber, in cans, 20-22c."

LIVERPOOL.—Forty barrels No. Pile Chilian have been sold at 15 to 16c per lb. We have now more inquiry and we expect shortly that licenses will be given freely and we shall be getting more orders. Low prices have been taken for Australian down to 15 to 16c per lb. Beeswax market remains dull and at the moment there is little or no inquiry. Business done is only retail. Taylor & Co.

Liverpool, England, March 25.

ST. LOUIS.—Our honey market is very dull and unsettled. Little demand for comb honey and extracted very hard to move. Comb honey, fancy, per case, \$6.50; No. 1, per case, \$5.50. Extracted, light amber, in cans, 17-20c; amber, in cans 15-18c, in barrels 15c. Clean, average yellow beeswax, per lb. 34c. R. Hartman Produce Co.

St. Louis, Mo., Apr. 15.

CHICAGO.—Not any surplus of comb on the market, which sells upon arrival in a small way. Extracted meets with so little call that prices are uncertain. All holders anxious to sell. Comb honey, extra fancy, per case, \$8.00; per lb. 33-35c; fancy, per case, \$7.50; No. 1, \$7.00; No. 2, \$6.00-6.50. Extracted, white, per lb., 17-20c; light amber, in cans, 15-16c; amber, 12-13c. Clean, average yellow beeswax, per lb. 40c.

R. A. Burnett & Co.

Chicago, Ill., Apr. 15.

DENVER.—Extracted honey moving slowly in small lots. Comb honey sold out entirely. Extracted, white, per lb., 19-20c; light amber, in cans, 18c. Clean, average yellow beeswax, per lb., 36c cash, 38c trade.

The Colorado Honey Producers' Ass'n.

Denver, Colo., Apr. 14.

KANSAS CITY.—Honey market very slow, both extracted and comb. Offerings heavy. No demand for comb honey. Comb honey, No. 1, per case, \$6.50. Extracted honey, light amber, in cans, 16-18c.

C. C. Clemons Produce Co.

Kansas City, Mo., Apr. 16.

SYRACUSE.—Practically nothing doing with us. Have no comb, and extracted moving slowly. Ex-

tracted, white, per lb. 20c; light amber, in cans 18c; amber, 16c. E. B. Ross.
Syracuse, N. Y., Apr. 15.

CLEVELAND.—The demand for comb honey continues very light. Market weak and prices unsettled. Comb honey, fancy, per case, \$7.00-7.50; No. 1, \$6.50; No. 2, \$5.50. C. Chandler's Sons.
Cleveland, O., Apr. 17.

FLORIDA.—Will commence extracting in about two weeks. Prospects now fair for $\frac{3}{4}$ of a crop. S. S. Alderman.
Wewahitchka, Fla., Apr. 14.

MONTREAL.—Supply is ample for all requirements. Some apiarists still holding good supply. Comb honey, extra fancy, per case, 30c; fancy, 29c; No. 1, 28c; No. 2, 24c. Extracted, white, per lb.

25c; light amber, in cans, 23c, in barrels 22c; amber, in cans, 21c, in barrels 20c.

Gunn, Langlois & Co., Ltd.
Montreal, Can., Apr. 16.

HAMILTON.—Quotations for honey have been reduced since the first of the year. Stocks have been considerably reduced. Extracted honey, light amber, in cans, 23-24c; amber, in cans, 22-23c. F. W. Fearman Co., Ltd.
Hamilton, Ont., Apr. 14.

TORONTO.—Market is dull, demand light, and prices unchanged. Eby-Blain, Ltd.
Toronto, Ont., Apr. 15.

CUBA.—Today there is being paid here for honey \$1.00 a gallon, and for wax \$30.00 per quintal (100 lbs.). Adolpho Marzol.
Matanzas, Cuba, Apr. 7.

Beekkeeping Service and Cash Selling

Helps for Bigger Beekeeping

Every ambitious honey-producer who wants more bees or who needs more equipment to enlarge his beekeeping operations should learn of our plan for co-operation. Honey will not be so easily disposed of this year as last and if you need any help perhaps we can furnish it.

We are prepared to render service in your financial, supply, producing, or selling problems.

Cash Advances on Your Crops

Being among the largest producers of honey in the West we know the business from the producer's side and we believe any ambitious producer can enlarge his operations to satisfactory proportions, if he knows our plan of handling the honey crop and selling bee supplies. You may be accommodated with an advance upon your crop on a contract plan whereby you receive the market price less our commission. Your crop prospects are of real value and we know better than any banker can be expected to know what is a reasonable advance upon such prospects. During the past season I sold about thirty carloads of honey at a price of from 20c to 25c per pound.

Cash Selling --- Money Saving

If you do not care to contract, bear us in mind when your honey is ready for market. We will buy it at your station and pay you as much or more than you can secure elsewhere. Beeswax is always in demand and we can use it at the highest market price thruout the year. Our stock of beekeepers' supplies and honey-containers is ample for the beekeeper's needs and we can save you money on every order. Our prices are based on cash terms, but if you cannot conveniently pay cash other arrangements can doubtless be made.

Give the Bees a Chance

Our bees are wintering in fine shape. While they have used up a good deal of honey they are strong in bees and brood. There is snow in the mountains and most of our reservoirs are full, so that we have prospects of a good crop. Your bees are doubtless in the same condition so that no chances should be taken of getting caught with too few supplies on hand to get the surplus. It is not fair to the bees to limit them with super room when the honey flow is on.

Any beekeeping or selling problem that you have, of whatever nature, we will endeavor to help you solve, and any communication you make will be treated in a confidential manner. Let us hear from you at once.

The Foster Honey and Mercantile Co., Boulder, Colorado

Wesley Foster, President

A Lot of Them

Have ordered their goods for this summer; in fact, we have been very busy here in Syracuse, and have received orders for goods as in May and June of former years. Bee-keeping is getting to be more of a business, and nearly every year more is secured from the bees than any thing else on the farm.

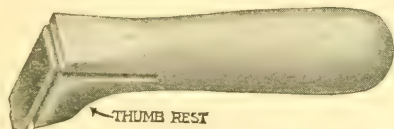
For the money and work there is nothing to beat the bees. . .

F. A. SALISBURY
1631 WEST GENESEE STREET
SYRACUSE, NEW YORK

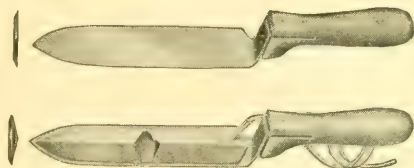
NEW BINGHAM BEE SMOKER



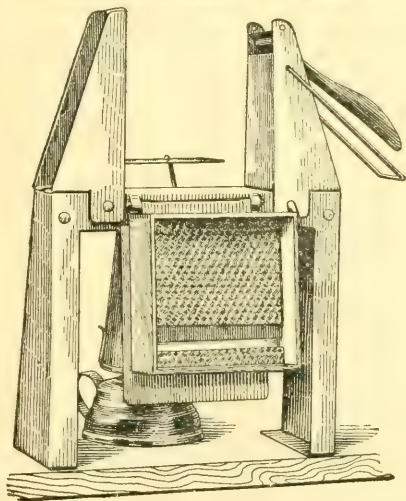
The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey-producers of the World. It is made in four sizes and has a leather bellows.



The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old timers will remember. Our Perfect Grip Cold Handle is one of the improvements.



The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.



The above specialties can be secured from us direct by post or from practically all dealers and manufacturers of supplies, with the exception of the Root Co., and agencies. Our 1919 illustrated catalog and special circulars will be mailed on request.

Tin Honey-packages

- 2 lb. Friction top cans, cases of 24
- 2 lb. Friction top cans, crates of 612
- 2½ lb. Friction top cans, cases of 24
- 2½ lb. Friction top cans, crates of 450
- 5 lb. Friction top pails, cases of 12
- 5 lb. Friction top pails, crates of 100
- 5 lb. Friction top pails, crates of 203
- 10 lb. Friction top pails, cases of 6
- 10 lb. Friction top pails, crates of 113

Write for prices on friction top cans and pails and 60-lb. cans, giving quantity wanted.

A. G. Woodman Company
Grand Rapids, Mich, U. S. A.

Home Wax Rendering--- Does It Pay?

More and more are we becoming a nation of specialists. In former times, for various reasons, it was advisable to spin cloth at home, to make clothes, to grind flour, etc.

Yet it is seldom that such operations are undertaken now by the individual family. It does not pay. The time spent, if valued at anything, would more than pay for the finished product.

Not only are you saving time, but also beeswax, as a battery of high-pressure steam presses under the supervision of a specialist can get more wax out of the same amount of combs than the individual beekeeper with a makeshift press on a kitchen range.

Dear Sirs:—Your bill for rendering beeswax, enclosing check for \$21 65, to pay for wax retained by you, was received yesterday. I am very much pleased with the result of my sending old combs to you. The quantity of wax secured is greater than I expected, and the exceeding promptness with which the matter was attended to was very gratifying. If I have combs of the same kind to be rendered again, I shall certainly send them to you. Feb. 16, 1919. HANNAH R. SEWELL, Fort St Glen, Md.

Gentlemen:—Your statement of wax rendered and bill for making same into foundation are received. I inclose check for \$7.93 for the balance due you. You got 25 pounds more of wax out of it than I estimated, and I also got rid of a messy job. FLOYD MARKHAM, Ypsilanti, Mich.

Send us your refuse, scrapings, combs or cappings.

When shipping same be sure to bill as "Beeswax Refuse" so as to get the lowest freight rate.

Prices and Terms on Application

Dadant & Sons, Hamilton, Illinois

GLEANINGS IN BEE CULTURE

MAY, 1919

EDITORIAL

ONCE MORE we wish to impress on beekeepers the necessity for the production of



Comb-Honey Production.

a very considerable amount of comb honey this year. It becomes more and

more evident that the market is going to demand a larger proportion of comb honey than during the necessitous war times. Will you do your part? Will you try to produce as much of it as you did before the war?



IN THE LAST six or seven months the editor has covered a large portion of the United



Foul Brood Increasing—the Remedy.

States, and during this time he has had an opportunity of studying a good many ques-

tions at first hand. One of those questions (or problems, rather) is that foul brood is not being brought under control, but is rather increasing in some States, in spite of all the bee legislation that has been enacted. This is not saying that our foul-brood laws have been of no effect. They have, in fact, done a great deal of good. Had it not been for them, bee disease would have run rampant, and conditions would have been infinitely bad; but there is this undeniable fact—a condition rather than a theory—that foul brood is not being cleaned up, and in many localities in the United States, it is becoming worse; and unless something is done in the near future, more than has been done in the past, it will come very near getting beyond our control. The Editor, during the period that the Short Courses were given in California, had extended opportunity to talk with Dr. E. F. Phillips and other members of the Government staff, including Frank C. Pellett of the American Bee Journal, on the subject of bee legislation.

Mr. Pellett has served as a foul-brood inspector in Iowa for a number of years. During all this time he was becoming more and more convinced that the legislation of the old days of the "big stick," or, to put it another way, of judge, jury, and executioner, under the name of bee inspector, was inadequate. After thinking the matter over considerably he went to his State legislature and asked for a repeal of the law—the very

law that gave him the job of State bee inspector of apiaries. This was a very unusual procedure; but, as will be seen, he was inspired by the good of the beekeepers of Iowa, rather than by a personal interest. After a considerable amount of work he secured the enactment of another law that gives promise of solving the serious problem of the control and final abatement of the two foul-brood diseases in Iowa. Before we go into the features of this law let us discuss some of the conditions that brought about its enactment.

Under the old laws there is usually created the office of a State bee inspector with power to appoint deputy inspectors whose duty it shall be to inspect the apiaries that contain bee disease and prescribe treatment. As a general thing they can cover only a part of the State, and that imperfectly. These bee inspectors are clothed with police authority to compel treatment or the destruction of colonies whenever, in their judgment, either policy should be carried into effect. The knowledge that they **can** do this causes trouble. Their very title virtually creates the function of judge, jury, and executioner all in one person. If the State bee inspector is the right sort of man, an expert beekeeper, a diplomat, and if that bee inspector keeps the "big stick" out of sight, and, instead, becomes an instructor and a royal fellow with a glad hand, everything goes well. But if, as the editor happens to know, the bee inspector is a man of another type, a mere police officer with no tact, harm is done. Or he may be connected with a clique of beekeepers who are his favorites. He may use his power of discretion—judge, jury, and executioner—in such a way as to favor some and shut out others. That some beekeepers have done this very thing has been reported more than once. Some may get their jobs thru a political pull, and politics very often puts in the wrong man.

The form of legislation that Mr. Pellett proposes creates the office of State Apiarist, or bee advisor, who, in connection with certain deputies that he may appoint, not only gives instructions on how to know and treat disease, but how to keep bees in a way that will bring financial returns. He is not a police officer but an educator.

Says Dr. Phillips, ignorance more often

than willfulness is the cause of spread of bee disease thruout the country. What is needed is instruction, not force. It is Mr. Pellett's idea, and the editor emphatically agrees with him, that the bee inspector should be a bee advisor. Instead of trying to inspect only beekeepers who are reported to have bee diseases, he arranges for a series of field meets at some beekeeper's yard where there may or may not be bee disease. With a crowd of two or three dozen beekeepers he gives lectures and demonstrations. There is no suggestion of a "big stick" back of him, as he has none. Instead, he is sent by the State to extend the glad hand, or helping hand, if you please, to the beekeeper who voluntarily will cure his bee disease himself as soon as he is taught how to do it. It takes a lot of personal instruction before the average man can clean up without putting in jeopardy every beekeeper for miles around.

Some months ago the editor called upon a beeman who had a pretty yard of about a hundred colonies. The hives were well painted, and everything looked neat and orderly. When we asked if we might see his bees he remarked that he had no objections, but stated that the bee inspector had made him a lot of expense and trouble—in fact, had **ordered** him to treat his bees or pay a fine. He had complied, he said, but seemed to be a little sore about it. On looking thru his apiary we discovered American foul brood in the first hive. We thought we would see just how this man would operate. His very movements showed that he did not know how to open a hive, for the bees resented his bungling movements at the beginning. He did not know how to open a hive properly—much less how to treat disease. With the sharp point of his hive-tool he dug into some suspected cells that roped out very badly. "That looks like foul brood," he said. We certainly agreed with him. Into the next hive he took the same point of the tool, without cleaning it, and dug into some healthy brood to see if it was all right. Then we explained to him how by that procedure he would scatter foul brood all over his apiary. He seemed grateful for the information and promised to do better.

Down the road, perhaps half a mile further, we met a good beekeeper who complained that he was going out of business because the other fellow down the road had made it impossible for him to keep his bees clean. He said the inspector had ordered his neighbor to clean up, but in the clean-up he had started robbing on infected material.

We happened to know that the bee inspector was a good man, but it perhaps had not occurred to him that what that man needed was instruction, and a great deal of it, before he ordered him to clean up. It would have been infinitely better for him to call two or three dozen beekeepers to the yard and give them a demonstration on **how** to treat. The trouble is now that many bee-

keepers, when ordered to clean up, are so unsanitary in their methods because they do not know how, that they clean out all the beekeepers in the territory by scattering foul brood far and wide. They don't do it viciously but ignorantly. Phillips is right.

At this point it may be argued that a law that creates a State apiarist, or bee advisor, with only the function of State lecturer, would not make the man clean up who willfully harbors disease. Mr. Pellett's idea is to have enforcement provisions in the law, but the enforcement of it not to be in the hands of the bee advisor, but with the county prosecutor or sheriff, where it logically and legally belongs. Any bee advisor, or any beekeeper, can, in the case of willfulness or continued negligence, compel treatment; but that compulsion would come from the regular constituted authorities whose business it is to enforce all laws, including the bee law.

There is scarcely a State in the Union where inspectors are able to cover more than one-tenth of the territory with the appropriations at their disposal. Under the new plan the same money would go much further, because the State would require the State lecturer and his deputies to arrange for meetings of three or four dozen beekeepers. These beekeepers would then be instructed, just exactly as the farmers are by the county farm advisors or the county extension men under the Lever law. In this way the same appropriation would go vastly further in the matter of eradicating bee disease alone, to say nothing about making better beekeepers who would themselves become educators among their neighbors.

In short, the Pellett plan of bee legislation is a general application of the Lever law under which the farm advisors or county extension men work, only in this case the erstwhile bee inspector, instead of becoming a police officer, becomes a bee advisor and a lecturer.



WE USED TO SAY that O. O. Poppleton of Stuart, Fla., was the greatest migratory bee-



**Migratory
Beekeeping.**

keeper that ever lived. Perhaps he was, if we consider the business of moving bees in other than carload shipments. But there is another form of migratory beekeeping that has in late years grown to enormous proportions. This involves the movement of cars of bees from one State to another. During the past year or so bees have been moved from Texas, Idaho, Montana, and Wyoming, to California and back again in thousand-colony lots. Into Riverside County alone there have been moved something like five thousand colonies of bees from other States.

The plans seem to be this: A crop of honey is caught in Idaho or Montana, and the bees moved, as cold weather comes on, into Cali-

fornia, where the bees are built up during winter on the eucalyptus, after which they may or may not make a 60-pound can of orange-blossom honey to the colony. This so-called "orange-blossom," by the way, will very often be mixed with mountain sage, wild alfalfa, and buckwheat. After catching the California crop the bees are loaded into cars and moved into Idaho, Montana, and Wyoming when they are just about in time to catch the alfalfa. In this way the cycle continues year in and year out.

During the high prices of honey that have prevailed during the last two years the practice has been highly remunerative to those who have sufficient capital and skill to conduct the business. For example, the Superior Honey Co. of Ogden took last year \$50,000 worth of honey. The company owned and operated three thousand colonies, fifteen hundred of which were moved into California and then moved back again.

The Editor has run across something like a dozen extensive migratory beekeepers in California that have gotten the business of moving bees in carload lots down to an exact science, and they have made money. This does not mean that they do not sometimes have some losses, particularly if it turns hot suddenly after the bees are *en route*. There is absolutely no difficulty in moving during the cool weather. When the bees are moved from the North to California, the problem is comparatively simple, but when they are moved from California during hot weather to the North, trouble begins if one does not understand the business.

Some beekeepers use refrigerator cars during hot weather, packing them with ice. Others use open cattle-cars, carrying along barrels of water to sprinkle the bees when the weather is insufferably hot or the car stops for transfer. As many as 700 colonies have been moved in a car.

We hope to be able to give some concrete cases later on, with particulars.



BEEES DON'T WORK for nothing and board themselves anywhere in the United States;



Decoy Hives
in California.

but in some seasons and in some localities they come very near doing that in California, as we have pointed out before. This does not imply that bees do not require expert attention here. As a matter of fact they need more of it than in the East; but the very fact that bees can many times shift for themselves has made it possible for runaway swarms to occupy caves, crevices in the rocks, cavities in trees, and places in and outside of buildings. These wild bees, together with those in control of man, anywhere from 10 to 25,000 colonies to the county, make it possible for runaway swarms to be more or less common—so common, indeed, that the business of trapping swarms in decoy hives is fairly

common and profitable. It would be less common if beekeepers would watch their bees closely. They either have too many or else neglect what they have—result, swarming and lots of it.

The high price of honey during the last two years has made it next to impossible to buy bees for either love or money. Accordingly, many people have resorted to the practice of catching stray swarms in boxes or hives conveniently located 10 or 12 feet above the ground, in trees. These hives contain preferably a piece of comb and two or more frames of foundation. Those who make a business of putting out these decoy hives place 10 or 20 of them among the trees, and some have captured as many as 10 or 20 swarms a day. Ernest Allen, secretary of the local exchange of La Mesa, near San Diego, has caught as high as six swarms a day for seven days. In fact, Mr. Allen made his start in beekeeping from his trap swarms.

Sometimes the trap-swarmling business is in disrepute, especially when the trapper locates numerous decoy hives around a large apiary belonging to another man. Such poachers usually "get in so bad" that the beekeepers finally run them out of the country. They do not object, they say, to legitimate decoy-hive trapping, for there are hundreds of stray swarms that would go to the rocks or trees, and thereafter be a constant menace on account of bee disease.

There is another form of bee-catching that is totally distinct from the decoy-hive scheme; and that is where certain disreputable persons fix up robber-trap hives with bee-escapes to trap their neighbors' bees. During the dearth of honey a person of this kind can bring on a genuine case of spring and summer dwindling among his neighbor beekeepers, and at the same time enrich himself. The beekeeper's colonies begin to dwindle, and he wonders why. Soon he finds out, and then, *biff-bang-wow!*

This kind of trapping has all but gone out of practice for the reason that it would go pretty hard with the trapper if he should be caught at it. One or two parties engaged in the practice are being watched very narrowly, I am told. In some parts of the State where the law can not be used, the shotgun stands ready. We, of course, can not recommend or condone one wrong to right another, much less the use of a gun, even to correct an abuse.

We have learned of another form of pilfering, where certain persons will go into isolated apiaries in broad daylight and take a frame of brood and bees out of every colony, replacing them with comb taken from the honey-house. There are many beeyards in California that are located up in the mountains where one can go and help himself to bees and brood with but little fear of detection for the time being; but murder will out. The honest beekeeper, when he discovers a case of unusual dwindling, is on the watch.

OUR old friend, the enemy, is attacking us under a camouflage. It is no other than European foul brood in its last stages.

While in its early stages it shows up in the old ways and form, yet, as if to make confusion worse confounded, in its later stages it tries to sail under the colors and the camouflage of the American type. This has caused endless confusion among beekeepers all over the country, with the result that thousands of good combs have been wasted by burning or melting, supposedly infected with the American foul brood.

During the last six or seven months that I have been on the road, I have observed a form of brood disease very much resembling American foul brood, but lacking some of the characteristics. I have found it in seven or eight States in the East. I have found it and have heard of it all over California. Sometimes I thought it was a new disease because it was not quite American, and certainly it did not look like the Euro-

THOSE CONFUSING SYMPTOMS

*Not a New Foul Brood Disease,
but a Hitherto Unrecognized Form
of an Old Disease*

By E. R. Root

pean which I had known so long. Whatever it was it would behave like European, but appeared very much like the American. Was it possible that

there was a milder form of American that would disappear of itself or yield to the treatment of requeening? Was it possible that some new organism had gotten into the American type of disease and modified it, so that it was less virulent?

I talked with Dr. Phillips of the Bureau of Entomology about it, and he was sure we didn't have any new disease and the matter was dropped for the time being; but like Banquo's ghost, whatever it was, it would not down. Here and there I was hearing about and seeing what looked like American foul brood, that would either disappear without treatment or yield to European treatment and strengthening.

I began writing to Dr. Phillips insisting that we had some very confusing symptoms in California—the same symptoms I had seen in several Eastern States. I urged that



Fig. 1.—Government Bacteriologist A. P. Sturtevant telling the beekeepers how to distinguish the difference between the last stages of European and regular American foul brood. He has his microscope in front of him, so that he can make an examination of the germs of the two respective diseases.

he send his bacteriologist here where he could do actual field work and perhaps determine what we had. I had given up all thought of any one's coming, especially after Congress adjourned without making certain appropriations. About that time, however, I received a letter from Dr. Phillips saying that I would be glad to know that Mr. Sturtevant, his bacteriologist, was on his way to California, and would I be kind enough to place him in touch with some of these confusing cases about which I had been writing. Very fortunately a series of field meets among the California beekeepers had been scheduled, and I lost

ous field meets give the beekeepers the symptoms by which the ordinary bee inspector or beekeeper could detect and differentiate between these confusing forms. This he did. After hearing him give these symptoms a number of times I am able to report the following synopsis:

New Light on An Old Subject.

It has been customary in describing the differentiation of symptoms between American and European foul brood to say that American usually attacks the brood after capping while European attacks before capping. This is true of typical cases. But



Fig. 2.—Bacteriologist Sturtevant looking for *Bacillus alvei* in European foul brood.

no time in getting him on the programs at these meetings.

Numerous samples were brought in by the beekeepers, most of which samples were either clearly American or clearly European. Later on we found some cases that were very confusing and one sample looked so much like European in some of its characteristics that several of us were confused. Mr. Sturtevant finally made the remark that he had better examine it under the microscope, with the result that he found it to be a clear case of American.

I have learned of a good many other cases that were just as confusing and I, therefore, suggested that Mr. Sturtevant at the vari-

within the past year or two more and more instances have appeared where this distinction had become obliterated. This has brought about a confusion in the minds of beekeepers as to which disease they were dealing with.

Under the microscope, says bacteriologist Sturtevant, the two diseases are easily differentiated, as the germs causing them are entirely different in appearance and habits. In American foul brood there is almost never found anything but the one organism, the cause of the disease—*Bacillus larvae*. This fact accounts for the uniformity of symptoms of this disease under ordinary circumstances. The germ is very characteristic

in appearance. It forms under favorable conditions for its active growth a small oval resistant body, called a spore, which resists drying and high temperatures. After killing the larva or pupa this germ decomposes the dead larvæ in a peculiar manner, leaving the trachea and chitinous parts intact and making a gluey substance of the soft parts. This gives the characteristic sliminess or ropiness and, later on, adherence of the scale to the cell wall. The glue-pot, or as Mr. Sturtevant says, fish-glue odor, is also quite characteristic. However, there may be stages which have heretofore been insufficiently described where the larvæ may not have been dead long enough to have developed the characteristic ropiness and adherence to the cell wall. At this stage the partly dried-down mass may not have even the characteristic color nor adhere to the cell wall, leading to the belief that it may be European.

The dead larva of European in any unsealed cell can usually be distinguished from that of American in unsealed cells by the abnormal position which it assumes. The former may be coiled in the bottom of the cell, or may be extended somewhat diagonally in the cell. A careful examination will show several of the larvæ twisted like long-drawn-out corkscrews, that is, the larva twisted to what we call a half turn.

There is never any of the corkscrew appearance with American. It is scarcely ever (if ever) coiled in the bottom of the cell. Death does not take place until the larva is stretched out, or after it is sealed.

In the case of European foul brood there are different conditions. The germ *Bacillus*

pluton, causing this disease, does not form these resistant spores. It also seems to be less active in the way it decomposes the dead larvæ. According to Sturtevant, in European foul brood, along with the organism that kills the healthy larvæ, may often be found several secondary germs having no relation to the cause of the disease, but simply causing the larvæ to decompose. There is one organism in particular, *Bacillus alvei*, originally supposed to be the cause of this disease, which often seems to be associated with European foul brood in large numbers. It appears that the more of these organisms there are present after *Bacillus pluton* kills the larvæ, the more the appearance will change. Instead of the typical moist melting stage of the disease there are found, due to the action of the *Bacillus alvei*, more and more larvæ that have not died, until after they have become capped. In this stage it is often difficult to distinguish from American foul brood as the dead larvæ may, before they dry down, show a tendency to sliminess, to rope somewhat, and to develop the coffee-brown color. However, the way they rope is different from the characteristic fine thread of American. It is coarser, at times lumpy, and too moist to stretch far; also as it becomes a little more dried it will stretch like an old rubber band and in breaking instead of snapping back will remain stretched out. At this time the mass has a very disagreeable spoiled-meat odor. If, however, the case is watched for a few days longer allowing the dead material to dry down, it will be found that these masses, which generally lie very irregularly placed in the cells, may be easily removed entire; while in the case



Fig. 3.—Government Extension man, Jay Smith, explaining to the group of beekeepers assembled at the apiary of F. C. Wiggins, San Diego, Calif., how to rear queens. Mr. Smith has been doing this all over the State.

of American foul brood it is practically impossible to remove an entire scale. Furthermore, instead of being brittle like the American scale, these irregular masses will bend like a piece of old rubber.

Owing to the fact that European foul brood has been so neglected in California,

safest course to pursue where European is known to be prevalent.

The microscopic diagnosis will, as Mr. Sturtevant clearly demonstrated, bring out this difference at once, since the germs causing the disease are so characteristically different. The microscope, aided by other laboratory methods, also explains the abnormal symptoms which may appear in European foul brood when there are large numbers of this secondary contaminating organism present which causes a different type of decomposition.

Recapitulation.

So far it is apparent from Mr. Sturtevant's investigation, that there are only two brood diseases the same as we have heretofore known. This confirms the conclusions which he had already reached in his laboratory work on brood diseases. The American remains just as it was without any change. The European, however, takes a later stage somewhat resembling the other disease. At first all the symptoms that heretofore have been given for European appear. Later on, if nothing is done to effect a cure, a secondary organism, *Bacillus alvei*, comes in and modifies the symptoms to such an extent that European takes on a form similar to American, but yields to the treatment of European. The *Bacillus alvei* apparently slows up the action of the *Bacillus pluton*, which is the real cause of European, so that



Fig. 4.—Miss Whipple of Mendleson & Whipple, Ventura, Calif., in her farmerette suit. Miss Whipple has general charge of the farmerettes in rearing queens.

due to the custom of treating for American, *Bacillus alvei*, the secondary decomposing organism, has increased to such numbers that it has changed some of the symptoms of the disease in its last stages particularly. Therefore it is not safe to jump at conclusions too hastily in the case of brood diseases, since there are stages at which it is very difficult to differentiate without the aid of a microscope. If it is impossible to get a microscopic diagnosis, Mr. Sturtevant recommends that the best plan is to treat the case vigorously as if it was European foul brood, by dequeening the colony and building it up strong by doubling with other queenless colonies and then watching developments. This kind of treatment with good Italian stock and making the colonies strong is good beekeeping, disease or no disease, and is the only way to secure a crop. If it is European foul brood it will clean under this treatment. If it is American foul brood it will not clean up, and soon the definite characteristic appearances will develop. This will eliminate the melting-up of combs in European foul brood and is the



Fig. 5.—Mrs. C. C. Black, one of the farmerettes working for M. H. Mendleson, who stands in the foreground. She is looking in the finder of the camera oblivious of the fact that Jay Smith was taking a shot of her with his ever-ready Graflex camera.

the dead matter appears mainly in the sealed cells while the unsealed larvæ look a little like the dead larvæ of American.

It is apparent that a microscope and expert bacteriologist might have to decide which the disease is; but Sturtevant says to apply treatment for European and if at the end of two or three weeks the disease comes back it may be assumed that the American foul brood is the disease; but if it effects a cure then it is a case of European. This policy will save thousands upon thousands of combs.

Farmerette Beekeepers Again.

After I showed the picture of Mendleson's farmerette beekeepers, appearing on page 76, February Gleanings, I received a letter from one of our subscribers protesting that the farmerettes were displacing men, and that it was all wrong, etc. I hardly have the space or the inclination to discuss the right or wrong of this, any more than to say, that when our wives, mothers, daughters, or any other girl or woman can be of service in a beeyard, she should have the privilege of dressing safe and sane. There are some things like queen-rearing that women can do just as well as men. In the matter of extracting with a power outfit, says Mr. Mendleson, they are just as good as men **and a good deal cleaner.**

The last time I told about Mr. Mendleson's farmerettes I said that a number of them had "swarmed out" meaning got married, and I intimated that he might need some more. This last must have been more than he bargained for. Over a hundred girls applied for jobs as farmerette beekeepers, and the poor man, so I am told, sat up nights writing letters saying he was awfully sorry but he had all the girls he needed.



Fig. 6.—Miss Marye Culver of Calexico, Imperial County, Calif., in her farmerette bee suit. Her father, W. W. Culver, is one of the most extensive beekeepers of the Valley. Last year he took 1,000 cases of 120 pounds of honey each from 1,100 colonies. With not a little pride he told the editor of Gleanings that his daughter Marye was his right-hand man in the bee yards. Only sweet sixteen, yet while her brother was in France she took his place.



THE SWARMING PROBLEM

*The Ounce of Prevention and the
Pound of Cure. Some Seasons
Both are Found Necessary*

By Elva M. Demuth.

LAST month I pointed out the desirability of securing the great army of workers for the harvest quickly and just previous to the honey flow in order that most of the bees shall be young at the beginning of the harvest. In our locality the greatest amount of brood should be in the hives during the month of May, and especially the latter part of the month, since the honey flow from clover usually begins early in June.

This sudden and rapid expansion of brood-rearing, which is so important, at this time, brings prominently upon the horizon the swarming problem. It seems that the greater and more rapidly the increase in brood-rearing, the more threatening and

bafling this new menace becomes. Our worst seasons for swarming have occurred when the colonies had built up most rapidly and completely, and especially

after a wet May when the field bees were confined to their hives the greater portion of the time and therefore not appreciably aged by work.

Thus while good beekeeping demands a fivefold increase in population within the few weeks just preceding the honey flow, this great spurt of brood-rearing is conducive to a desire on the part of the bees to divide their forces at this time, thus defeating within a few minutes the purpose toward which we have been striving since last August. Furthermore, when we attempt to

interfere with this inclination of the bees, they may resent the interference and work less vigorously just at the time when we can least afford any loafing.

This is the swarming problem afforded by our locality; with our short and usually rapid honey flow, occurring just at the height of the natural spring brood-rearing activity, it becomes a problem of no small magnitude, especially in comb-honey production. During occasional seasons, especially bad for swarming, a majority of the colonies run for comb honey may attempt to swarm, in spite of all the precautionary measures we have been able to apply. During practically every season some colonies behave as tho they thought swarming to be the sole purpose of their existence and serious work to be of minor consideration.

We look upon the actual issuing of the swarm as the culmination of a series of events within the hive which began several weeks previously. This makes it necessary to recognize the oncoming of the menace rather early in May in order to take precautionary steps to prevent its inception, tho our swarming season occurs in June.

Precautionary Measures.

By giving ample room of the right kind for brood-rearing, it is not difficult to prevent all swarming previous to the beginning of the honey flow. This room for brood-rearing should be of such a character that the brood-nest may be expanded without interruption. If a comb unfit for brood-rearing is between the brood-nest and adjacent perfect combs, it stands as a partial barrier to the extension of the brood-nest. A new comb, even tho perfect but in which brood has never been reared, if placed in the middle of the brood-chamber, sometimes offers an obstruction sufficient to cause the queen to skip it and begin work in an older and darker comb beyond. Combs with stretched and misshapen cells in the upper portion, which are so common with horizontal wiring, become a partial barrier to the extension of the brood-nest thru two stories. These imperfect cells add to the obstruction formed by the sticks and spaces already there. In any case the partial limitation of the brood-nest may be a factor to help start the bees along the downward road toward swarming. We have seen many cases of early swarming from large brood-chambers which had an abundance of comb unoccupied. Apparently such colonies swarm because the brood-nest itself was cramped by the interposition of imperfect comb, sticks, and spaces.

Some of the finest combs we have in use are relics of the days of reversible frames. They were inverted the first season, which caused the bees to extend the brood to the top-bars, and the combs were thus so strengthened by cocoons that they have never sagged. The upper portion of these combs does not prevent a free extension of the brood-nest thru two stories, which is so desirable at this time.

When the combs are perfect and their arrangement is such that the queen can work in larger and larger circles, we have not found it necessary to exchange places among them or in any way attempt to expand the brood-nest artificially to prevent early swarming.

Comfort of the Bees.

Sometimes a week of warm weather may occur before the winter packing cases are removed or before the entrances are opened wider for better ventilation in the spring, resulting in great masses of bees hanging outside the hive. Frequently queen-cells are started under such conditions, apparently in response to discomfort. Usually, however, such colonies give up swarming if more room is given.

Later, during the honey flow, of course, ventilation and shade are of great importance to insure the comfort of the bees and, we think, to reduce the tendency to swarm. We still use the old-fashioned, unsightly, projecting shade-boards on our hives during the honey flow to prevent the direct rays of the sun from striking the hive cover and the sides of the supers. At the same time the entrance is opened at the full $\frac{7}{8}$ -inch depth and the hives are shoved forward on the bottom-boards to allow a similar opening at the back, or the hives are blocked up off the bottom-boards by means of $\frac{7}{8}$ -inch blocks. When shade-boards are not used we think it is important that the hive covers be painted white, and the paint frequently renewed to prevent the absorption and transmission into the hives of so much heat from the sun.

Effect of New Work.

In order to hold the swarming instinct in subordination the bees apparently need to have their job laid out for them far in advance, so that its completion is never in sight. If the brood-chamber is filled with brood and early honey and this early-gathered honey is being sealed down adjacent to the brood, before work is begun in the super, the bees seem to feel that their job is approaching completion and that it is time for them to swarm. To prevent this condition the supers should be put on before the beginning of the main honey flow and every inducement offered to entice the bees to begin work in them promptly. In comb-honey production, bait combs in a few sections may attract the bees into the supers before the brood-chamber is completely filled, thus bridging over the work from the brood-chamber into the super before there can be any suggestion of a completed job within the brood-chamber.

When the two-story colonies are reduced to a single story at the beginning of the honey flow we sometimes have some difficulty in inducing the bees to accept gracefully the new work in the comb-honey supers given at that time. To reduce strong two-story colonies to a single story and give comb-honey supers containing foundation only in the sections, is to invite every colo-

ny so treated to swarm under certain conditions of weather and honey flow, but if they can be induced to do a little work in the supers before the extra hive body and combs are taken away there is less difficulty. We usually give each colony two supers at the time they are reduced to a single colony, each of which is supplied with bait combs. At the same time we see that they have ample ventilation and shade, if the weather is warm; for, we believe, to hold down the swarming instinct properly, it is necessary to induce the bees to begin promptly and vigorously in the first supers. In the supers added subsequently there is little, if any, difficulty in expanding the new work ahead of the needs of the bees by placing each added super next to the brood-chamber until the foundation is drawn, then placing it on top of the other supers.

For the same reason many producers of extracted honey transplant the work of the brood-chamber into the super by raising combs from the brood-chamber into it. In the same way, when the second super is added partly filled combs from the middle of the first super may be exchanged for some of its empty ones. If in this way we can make the bees so comfortable and their work so attractive that the field workers are enticed out of the crowded brood-chamber into the fields and the younger bees are attracted out of the brood-chamber into the supers to the greatest possible extent, the brood-nest itself is so depleted of bees that the colony is comfortable and the work of the hive goes on without everybody being in everybody else's way. We want a great horde of bees in every hive during the honey flow, but do not want many of these in the brood-chamber at this time; for it seems that when too many crowd into the brood-chamber, whether they be young bees recently emerged, field bees driven in by a spell of rainy weather, or a horde of idle drones, that such crowding among the brood-combs is a breeder of mischief and discontent, which may result in swarming cells being started at an early date. This extra population needs to be given a job outside the brood-nest. If too many youngsters are crowded in the brood-nest, some producers of extracted honey remove a part of them, together with most of the brood-combs, and place them in an extra hive body above the supers, as in the Demaree plan.*

Killing Queen-Cells.

In comb-honey production after the colonies have all been reduced to a single story and given comb-honey supers we begin the weekly examination for queen-cells, which examinations are continued until the danger of swarming has passed. When any colony has progressed far enough along in the succession of events toward swarming to start queen-cells we usually feel that this may be at least partly our fault in not providing

adequate precautionary measures, tho some seasons we are inclined to blame it on the character of the honey flow and the weather. It is interesting to note, however, that as the years go by the season is blamed less and the management more for these attempts to swarm. When queen-cells are found during these weekly examinations they are destroyed, care being taken that none are missed; for if one is left in the hive the results are probably the same as tho all had been left. If the cells contain only eggs or very small larvæ, we leave the colony without further treatment another week, hoping that the bees will reconsider the matter and give up the attempt. While we are often disappointed in this, yet so many colonies go thru the season without swarming after having their queen-cells destroyed once or twice that the labor of looking for and destroying these recently-started queen-cells is usually quite profitably spent.

The Pound of Cure.

If, however, well-developed queen-cells are found, we know that the trouble has developed too far for preventive measures and some remedy is necessary. Just what remedy is best to use depends so much upon the character and advancement of the season as well as upon the condition of the colony in question, that no set rule is followed. In some cases the brood is taken away from the colony, leaving most of the working force, the queen, and the supers together with the hive on the old stand, as in hiving natural swarms. Later, most of the young bees that have emerged from the removed brood are returned to the colony by some one of the well-known plans for doing this. Colonies treated in this way sometimes attempt to swarm again the same season if the honey flow is long, but there is less tendency to do this if the bees are compelled to build new combs in the brood-chamber from starters only.

In other cases the queen is removed, all queen-cells destroyed, and the colony left queenless until all its brood is sealed. At this time all queen-cells are again destroyed, and a young laying queen, reared from some colony better behaved as to swarming, is introduced. Colonies so treated are in a condition similar to the parent colony after all swarming is over and the young queen has mated and begun to lay, except that it has retained its full working force. With us these colonies do not swarm again the same season.

With either of these plans the first step is to find the queen, and the decision as to which plan will be used is often made while doing this. We note a growing tendency toward killing the queen in colonies that must be treated for swarming, especially if not many colonies attempt to swarm. In extracted-honey production we would usually do so, for after we have done everything in our power to prevent swarming the swarmers may as well be weeded out in this way.

*Mr. Byer and others have used this plan. We believe there is no record that Demaree did so.—Editor.



ANNE LESTER AND DADDY LOWE, BEEKEEPERS



By Grace Allen—Chapter IV

BLACK locust, with all its swinging beauty, had come into full bloom and was filling the earth with its fragrance and grace.

"This is May Day," Anne remarked, as she and Mr. Lowe started for the beeyard one radiant morning. "The world woke up and called me early, and I went out before breakfast and played Queen of the May with Shep. Now I feel just like working with bees."

The old man smiled as he lighted his smoker. "You've got it in you, Anne, all right," he said. "I told Jack in my letter last night about how you get out all my bee books every evening, and pile those old bound volumes of bee journals around you—and dig. Just as tho you were going to school!"

"I am—to Professor Daddy Lowe!" Anne replied, adjusting her veil. "And please tell me what you are planning to do this morning," she urged, "for I'm really beginning to understand what you say."

"Well," acquiesced the old beekeeper, "about the time of locust I usually put my queens down. You see I winter in two stories mostly, and by this time the queens will have—oh, of course it varies greatly, but say from eight to sixteen combs of brood, mostly in the upper stories. So I put her down into the lower, under the queen-excluder, with most of the brood above."

"Why?" asked Anne thoughtfully.

"Well, first let me say it is by no means the only system to follow—it isn't even necessarily the best one. You'll find plenty of others recommended in the books and journals," Anne nodded. "But of all I have tried, this seems to be the best for me. You see, the queen has had unlimited room till now, and this will leave her with plenty for some time yet. From now on, I think ten combs is about enough. It wouldn't have been, from the first, tho."

"I've read about some beekeepers who use a double brood-chamber the whole season thru."

"Yes, the tendency seems to be towards larger brood-chambers. But I don't believe they need it all summer—just long enough to get this good start with brood-rearing. You see we don't care to have queens lay at their greatest capacity more than another three or four weeks."

"Oh! I thought the more brood the better."

"That is true—at the right time. But it's got to be early enough to provide bees for the harvest. Figure it out for yourself. It takes three weeks from egg-laying to raise the bees; then another two weeks before they are ready to go to the fields. That's five weeks. So eggs laid during the last five weeks of the honey flow won't give

us any bees to help bring that nectar in. Our main flow here lasts about two months. That leaves only the first two or three weeks for worth-while egg-laying. We've got about another week, now, before the main flow will be really on. So that gives us about another month for heavy laying. Do you get the idea?"

Anne nodded. "When do we put on supers?"

"Probably next week. And now let's get started. We can discuss other things as we go. If there's anything you don't understand, don't hesitate to ask."

He opened the first hive. "Anne," he said a few minutes later, holding up a comb with most of the brood sealed, but with eggs and young larvæ in the center, "judging from this comb, how long has the queen been laying?"

Anne hesitated. "Nine days," she ventured, "to have that brood sealed; longer, I suppose, if it has been sealed several days."

"She must have been laying at least four weeks, Anne," he said. "You see, she starts in the center, laying in rings towards the outside edges. So—"

"Oh, I see!" Anne cried. "The middle ones, that she laid first, have already hatched out—"

"Emerged," he corrected.

"Emerged then," she repeated; "that's three weeks; then she's laid there again and these second ones have hatched—not emerged, hatched—that's three days more; and the larvæ are evidently several days old now. Four weeks. Smart Daddy Lowe!"

"Smart Anne, you mean," he smiled. "Now let's see what we've got here." He set off the super and quickly examined each comb. "Altogether there are eleven combs here with brood in them, three combs of honey, two of pollen and four empties. Now let's put them this way. Below here, we'll put one comb of young brood, in the center; then on each side two empties, and some honey, and lastly a comb of pollen on the outside."

Finding the queen, he put her down among these combs, laid the excluder over the top, and set the second hive body on. "Now there are ten combs of brood above," he said, "and—"

"Wait a minute, Professor Lowe," Anne interrupted, "I want to ask a question. Why not put the comb down that has the queen already on it?"

"You can. Especially if she's on one you want down. This one wasn't. She was on a comb of sealed brood and I wanted that above. Because—" he waited.

Anne shook her head. "I don't know."

"It will emerge more quickly and give room above for storing honey."

Thus they went thru two more hives, Daddy Lowe explaining as he worked. But as they approached the fourth hive, Anne calmly sat down on it.

"Please, Professor Daddy Lowe," she began in her most engagingly wheedling tones, "I want to beg a great favor."

The old man laughed aloud. "Go ahead, child," he smiled, "I knew it was coming soon. Open one up and do it all alone."

Anne jumped down eagerly. "I've matriculated!" she exulted. "Now—you watch," she urged. "And—if there's anything you don't understand, don't hesitate to ask!"

Daddy Lowe chuckled and straightway became the watcher. Carefully Anne removed the cover, loosened the combs and started her examination of the super. One by one, she set out the five combs nearest her, and then began prying the upper hive loose.

"I'll do the lifting," Mr. Lowe said, rising.

"Please, no—thank you," Anne insisted. "I've set out enough combs so I can lift the rest myself. I want to."

Grasping the two handleleats, she lifted the super off. But alas, as she lowered it, she likewise tilted it. Two combs slipped off the rabbit and crashed to the ground. Instantly the air was filled with excitedly resentful bees. Daddy Lowe came gallantly to the rescue.

"Oh dear!" wailed Anne, flushed and distressed; "I'm so sorry! See what I did the very first thing."

"No great harm done at that," Mr. Lowe reassured her. "They didn't fall far. Only one comb is broken and that not badly."

"But you got stung picking up my wreckage."

"I was just the innocent bystander," he smiled. "But you invited me to ask questions. Do you mind explaining just why you did it?"

"Mean Professor!" she retorted, adding humbly, "Next time I shall lift it more evenly."

"And it will be easier if you don't have all the weight on one side," he suggested.

Anne finished her job without further mishap. Whereupon Mr. Lowe poured great comfort and delight into her troubled soul, by telling her to go on down that row alone, and he would start on the next row. "If you need me, I'm right here," he added.

Anne sighed rapturously. "I am beginning my career. My cup runneth over."

Most joyfully she worked, and thoroly, hive after hive. And right in the middle of it came Theodore Robinson.

"Oh, Theodore!" the girl cried eagerly, her enthusiasm sweeping away all other feelings. "I'm really starting to be a bee-keeper! Isn't it splendid?"

"Perfectly lovely!" Theodore answered dryly. The ironical emphasis made Anne suddenly self-conscious. She frowned ever so slightly.

"But Theodore, just think—"

"I haven't done much else for the last month," the young man accused.

"I've been studying beekeeping, myself," said Anne sweetly. "Aren't you afraid of bees, Theodore?"

Theodore kicked a tuft of unoffending grass. "Honestly, Anne, I never thought I'd see you out in the sun this way, all—"

"All what? Perspiry and hot? Well, to be honest, I never thought it myself. But here I am, and here I'm likely to be. What are we going to do about it?"

"That's what I came to tell you. But I'm interrupting your work."

"And I can't stop right now."

"I'll wait."

She protested, but he waited. So about an hour later, having first completed her row of hives, she came out from the house, cool and dainty and refreshed. Theodore was visibly relieved.

"This is the real Anne Lester," he said. The way he said it spoke volumes.

Anne resented both the speech and the inferred volumes. "I don't agree with you," she argued. "I believe the other was the real one. This is merely the product of a quick bath and a good dressmaker. What were you going to tell me?"

"I've given up my position."

"Theodore! Have you volunteered?"

The young man's face darkened. "Anne, you know so well I can't do that! Even for you. Every deep conviction in me is against war. I shall answer my call when drafted, but my conscience will never let me go voluntarily. The bitter thing is that you will never understand."

"It's true I'll never understand how you can feel that way, about this war. But I shall always understand how you can't go, since you do feel that way," she answered.

"Thanks," he said gratefully. "And here's the rest of my news. I've hired out to Mr. Clark—you know—the big farm next this. I'm going to learn farming."

"Farming? Why Theodore, you hate it! And—it makes you hot and dirty. What ever made you think of such a thing?"

"Can't you guess, Anne?"

Anne flushed and was silent. Finally she shook her head. "You musn't change your whole life for me that way, Theodore," she protested gently. "Besides it won't do any good. Honestly it won't."

It was his turn to be silent. But after a few minutes he jumped up with the old friendly, boyish grin. "Bet you a cooky!" he challenged.

"Bet you two!" she retorted, happy at the change of mood. And she walked with him to the gate. Coming slowly back to the house, later, she looked off across the fields to the big prosperous Clark farm. And looking, she smiled, and kept on smiling. Then she nodded her head wisely.

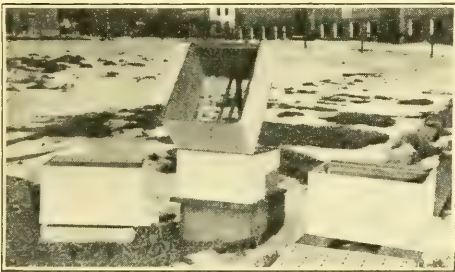
"All right, Theodore," she murmured. "I'm neither a prophet nor the son of a prophet, but I have a new big idea. And I'm willing to bet another cooky on it."



FINDING THE QUEEN

Here is a Way That Saves Time and Eye Strain
and Works Without Fail

The usual way of finding the queen is by the diligent-search method, with aching back and foggy eyes, so that a worker is magnified to the size of a queen, and a drone looks quite respectable. This has been my past experience till I had over 50 queens to find very late last fall when requeening. Necessity called for a quick method. Taking an excluder, I tacked it on the bottom of an extracting super which was placed over a hive body or box. I shook the bees into this super, and all that could pass through the queen-excluder, going below to cluster. If they were too slow, I set another excluder on top for a cover. A few puffs of



A queen-excluder tacked on the bottom of a super makes a queen-sieve.

smoke and a good shaking up always started them down. After they were quiet, I took off the top excluder, and all the bees remaining were drones, the queen, and a few scattered workers.

In the picture the hive at the left represents the colony having the queen to be found, which is set back of the hive-stand, and an empty hive put in its place to receive the frames after shaking all the bees into the super (shown tilted up in the picture for a better view.) Carefully lift out the frames in the center of the hive first. Very often the queen may be found on one of the frames; but after becoming excited she is quite likely to leave the frames and hide in a cluster on the hive wall. After the frames are out, jar the hive body by a sudden jolt on its corner on the ground. The bees then lose their footing, and can be poured like water. It is all more quickly done than told.

Put your bees thru this strainer to get the little black queen, and then give them a beautiful Italian.

Geo. A. Brill.

Elk Mound, Wis.

BEEES AWAY UP NORTH

How an Apiary to the Northward of Winnipeg is
Successfully Conducted

For five years I have been in charge of our apiary at St. Norbert, Manitoba, Can., Trappist Monastery. I am not an experienced apiarist. In fact I am yet a novice in the art of keeping bees. Nevertheless, in 1915 and 1916 I secured a large crop of honey. Fourteen years ago one of us purchased some bees and became enraptured with the work of beekeeping; and the result of this was that he also purchased 12 ten-frame Langstroth hives of bees from which, during the next year, he secured 24 swarms, and 3,000 pounds of honey. This profit induced him to take up the business of beekeeping as a pursuit. He, therefore, bought a manual of bee culture; built a house 18x26; purchased a complete beekeeping outfit; and then secured, the first year, a crop of 200 pounds of extracted honey per colony. From 1904 to 1912 Bro. Anthony had only one poor year, and even then the profit from his colonies was sufficient to pay all expenses.

You doubtless know that in Manitoba the winter is very long, and, therefore, heavier winter losses are experienced than in the United States. One winter we lost 18 colonies out of 75; but during the same year we took 10,000 pounds of honey.

In 1912 all our hives and colonies were burned in the cellar of our guest-house, where we kept them in winter. We bought 30 other colonies from which we secured 33 swarms the first season. This was my first experience with our apiary, and since then I have remained in charge of it.

In our first wintering we were forced to keep our new colonies in a cellar that was too warm. Dysentery was the result, and I was able to save only 28 colonies. But I gave my bees close and accurate observation and hard study, and now I am glad to tell you that I received a crop of 4,200 pounds. During the following winter the cellar was not heated at all, and all the frames became mouldy. However, I saved 32 colonies, which increased to 45 and stored 420 pounds of honey.

The following spring I began with 42 colonies. The weather was fine during that spring and summer and I secured an average of more than 250 pounds per colony. The strongest colony gave us 420 pounds of honey, and several others at least 300 pounds. I also hived more than 20 swarms.

In 1916 I secured still more honey, but in 1917 was far less successful, and everywhere around us honey was very scarce, too. The spring of that year was remarkably dry, flowers were scarce, and many had no

FROM THE FIELD OF EXPERIENCE

nectar at all. Severe storms in summer and fall, particularly a hard hailstorm, put an end to the work of the bees. A heavy snow-fall during the third week of October forced me to place my colonies in their winter home on the 27th of that month.

Before explaining what I did to get such a good crop of honey in 1915 and 1916, I will say again that I am not a very skillful bee-keeper. I always try to be a man of good will. I work hard and try to do my best in everything. I also pray God to help me and to give me a great deal of perseverance in my work. My aim is to obtain from my bees the largest crop possible. In order to do so, here is the way I manage, trying at all times to avoid loss of time and money as much as possible.

First, I follow four important rules. I seek to have, first, a very productive queen; second, a strong force of bees in each hive at the time the season opens; third, the largest number of artificial colonies possible, for I suppress all natural swarming; fourth, sufficient room in the brood-chamber and in the supers.

I will not attempt to describe the apiary, which is situated in a park of some two acres, and which is divided into four alleys in the shape of a letter M. Each alley is lined by a certain number of hives, placed on iron or wooden supports about 18 inches high; and in front of each support there is put an ordinary entrance alighting-board.

As soon after the first days of April as the weather permits, I look for the queen and brood. Ordinarily I have 12 frames in

each hive. In the spring I take out three or four or even five according to the strength of the colony. The brood-nest I place near the wall of the hive, between the division-boards, leaving from 10 to 15 pounds of stores in each good hive.

When I find a colony that is very weak I put it, on a pleasant day, in the place of a very strong colony, slightly before the time for the bees to fly. I find it well to place a board before the entrance of each of the hives which I have thus transposed. Those colonies which have lost heavily in bees by this exchanging of hives, I cover warmly with paper. Besides this, in April or May (and often afterward, during the night) I thus cover our hives to protect the brood from cold. By this method I have often saved colonies which had only two or three hundred bees, and these same colonies have given me the same year 300 pounds of honey, each.

By the first of May, if the temperature is warm, I begin a new general visit to my hives, to make sure that the stores in them are sufficient; and also to clip the wings on my queens that were hatched the previous season. If there is enough room and the colony strong enough, I enlarge the brood-nest by adding more combs. By May 20 or 30, excepting those that are very weak, my hives generally have the full set of 12 frames.

At the end of May, or the beginning of June, if everything goes right, I give some empty frames to the strong colonies, placing them preferably in the supers, as they are



The apiary that's north of Winnipeg.

FROM THE FIELD OF EXPERIENCE

built there with greater regularity than those that are placed in the brood-nest. I insert these frames between the frames already built out, always taking care to leave one filled frame at each side of the walls of each hive. We use a queen-excluder.

Ordinarily swarming has not taken place before the beginning of August if everything has gone right. During my visits to the hives I always provide room for the queen to lay, by inserting in the brood-nest one or two frames that are very even or uniform. As my object is to restrain natural swarming, I lift out the combs of brood from hives that are very populous, and distribute them immediately to those colonies that are very weak.

In order to increase artificially, I make use of two plans. The first one is used when the months of May and June are favorable. About the first of June I put supers, with drawn comb, over a few of my best colonies in order that the queens may start brood in the supers. Ten or fifteen days after this, if all goes well, I go to my colony that contains my best breeding queen and take her away, with the frames of sealed brood, and with them form a new colony, strengthening it with two other frames of brood. On the eleventh day I visit the hives in which I have been preparing frames of brood, and confine each queen to her lower story, with a queen-excluder; then, from the upper stories, I take from two to four frames of sealed brood, with the adhering bees, and put one in each of the empty hives, closing each entrance with a metal grating, and putting these hives on new stands. The same day, or perhaps the day following, I give each one of them a queen-cell from my best colony, or better, a comb on which there is one or more queen-cells, and lo! the swarm is made. The hives from which the frames of brood were taken are filled with frames of foundation and left to secure a crop of honey, which often amounts to 250 or 300 pounds. Two days later, I remove the grating from the entrances of the new swarms and examine them to ascertain if the queen has hatched, and again later to find if she has mated. After the queen commences laying, I fill the hive with frames of foundation, and when all are nearly full, put on my queen-excluder and supers. Some of these artificial colonies give from 50 to 60 pounds of honey.

My second plan of artificial swarming is still more simple. Towards the end of August, at the time of the first frosts, I fill a hive body with choice combs and place it, with a queen-excluder beneath, over one of my strong colonies. The next morning the colony is removed from its stand, and the super only put in its place, moving the brood-chamber to a new location. Two days later the new colony is given a laying queen,

or a virgin if there are still plenty of drones. After this queen has commenced laying, her colony is strengthened with two frames of sealed brood from the parent stock. These young bees are the hope of the hive for the ensuing spring. This second method is especially advantageous when the weather is cool during May and June, as it does not interfere with the honey crop, and the new colony may build up to 12 frames of brood by Aug. 15. The dividing of such colonies, after the honey flow, cannot fail to render wintering easier. That is one of the advantages of the 12-frame hive.

Towards the 15th of September, when the brood is nearly all hatched, I give each hive the stores needed, leaving about 40 pounds of honey in each hive.

At the time of the heavy frosts, I cover my bees with paper—that is, old newspapers; and, at the beginning of November, I generally carry the hives that are on their summer stands to a cellar under the house.

Bro. Valentine.

St. Norbert, Manitoba, Can.

THOSE PROLIFIC STRAINS

Not so Good as the Bees That Will Gather Some Honey Even in a Drouth

In selecting a queen for breeding purposes I prefer a colony that is able to gather honey at times when most other colonies can not. In other words, I am always on the lookout for the colony that excels in a time of comparative dearth. Again, altho I am probably going contrary to the belief of the majority, I do not like an extra-prolific strain of bees. There may be such that are good storers and not given to swarming, but I have not seen such. A moderately prolific strain that will breed well early in the season, with a tendency to slacken somewhat as the flow becomes heavy, is the kind I prefer; and if I can not get as large a yield per colony in very good seasons I will keep enough more colonies to make the aggregate crop as much, and, I believe, in certain seasons more. My idea of a suitable strain of bees is one which, in a given locality, will, one year after another, give the maximum amount of honey with the minimum expense of labor and feed. Where bees are allowed to breed promiseously, as in natural swarming, we find all the way from fairly good to almost worthless except in an extra-good location or in exceptionally good seasons. We find in apiaries of these mongrel bees the yield running from 200 pounds or more, in a favorable season, down to nothing per colony, while in a season rather unfavorable we may find little or no surplus, and most of the colonies in poor condition for winter.

Now, if we select a strain that will gather

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a little in time of comparative dearth, we shall be able to keep a more uniform number of colonies from year to year, not only getting some honey in lean seasons, but coming thru to the good seasons with a full equipment of good colonies. How many times has the writer seen people become enthusiastic over bees during a good season when almost anything in the line of bees would yield something, only to lose most or all their bees a year or two later following a more unfavorable season! This is, in my estimation, one substantial reason why the farmer should not try to keep bees. He will not, as a rule, breed bees, but will undertake to keep mongrels which can not thrive except in favorable seasons.

If any think I am fanciful in this, just turn your mind to any kind of stock. Let your stock breed hit or miss, you doing no selecting as to parentage, and what kind of stuff will you have in a few years? Yet this is just "nature's way," so much lauded by some when it comes to bees.

Dunlap, Ia.

E. S. Miles.

MANAGEMENT OF OUTYARDS

A Very Successful Beekeeper's Methods in Running Many Apiaries

There comes a time in every beekeeper's career when he gets more bees than his home location will support, and it becomes necessary to start a series of out-apiaries. The first move in this direction will be to select a location for the out-apiary. This should have an abundance of honey-bearing flora for early feed as well as for the main or surplus yield. In our section we have elm and soft maple for early pollen, and fruit bloom and dandelions a little later. Some years these yield amply so that no feeding need be resorted to, but most years I think it pays to feed between fruit bloom and clover, especially if the colonies go into winter light. After finding a favorable locality as to honey plants, I look for an apiary site. This should be well protected by hills, trees, or brush, or all three, and should be so situated that the flying bees will not interfere with passers-by, or farming operations, as there is nothing that so exasperates the public or the landowner as an occasional sting, or a mad bee following him about. If one is so unfortunate as to be so located, and his bees trouble his neighbors, I find that a liberal dose of honey applied before said parties have time to enter complaints will nearly always forestall any ill feeling. The site should also be easy of access by auto-truck, as the time for working out-yards otherwise has gone by. A small stream or other good water supply should be near the apiary, as bees consume more water than many suppose, and having it

handy saves many bees and much time carrying it.

Now for the outfit. We will need first an extracting house to store supers, etc., and to extract honey in. I find a 12x12-ft. house about right as to size for an apiary of 100 colonies. Then, of course, we must have our pet hive. Probably for out-door wintering the 10-frame Langstroth is best; but for cellar wintering I find nothing better than the 8-frame hive, as it is easy to move, and by adding the necessary supers I find it ample for my locality.

In the spring, the first warm day after the bees have been set out of the cellar, and have had a cleansing flight, I examine all colonies as to stores, strength, disease if any, and mark them as strong, medium, and as weak or diseased, if any. Then I take my quota for each yard, according to strength. I have some yards where the flow begins 10 days before others. So I take the strongest colonies to the earliest yards first; the medium, next; and the weakest last, to the latest locations. My reason for this is to give them time to build up for the harvest. I also see that each one has, at this time (May 1 to 15, a little before fruit bloom with us) "millions of honey at our house." To facilitate rapid breeding I close down the entrance to 1 inch by $\frac{5}{8}$ on the weak ones and $\frac{5}{8}$ by 4 inches on the strong ones.

I also cover the weak ones and medium with black neponset building paper, held in place by a strip tacked around the bottom. This helps to raise the temperature so with plenty of honey they need no attention



One of the Beaver out-apiaries.

till near the clover flow. Of course, the medium and strong ones should be looked after at regular intervals and given room as needed by adding supers. I give the queen the freedom of the hive till clover bloom when she is put below an excluder with two frames of unsealed brood, and the brood-nest filled with drawn combs or full sheets of foundation. Nine or ten days later I

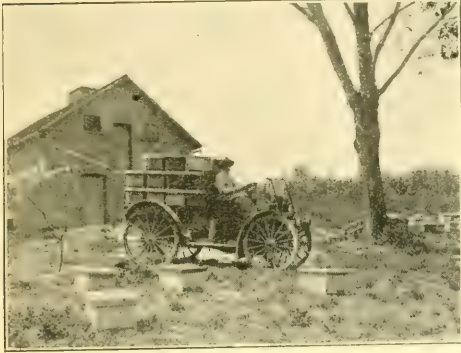
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destroy the queen-cells, if any. This practically prevents swarming with us. We raise our queens from the best colonies and requeen as soon as a queen isn't up to the standard. I make all increase from the strong and medium yards, using the nucleus

winter we get hives ready and frames wired for the next season; also all wax is taken care of, and made into foundation, and the honey crop disposed of. Harry Beaver.

Troy, Pa.

[Last year Mr. Beaver treated 300 colonies affected with foul brood. He says the disease is prevalent thruout his section and he has had a constant fight to keep it subdued. In the face of this discouragement, Mr. Beaver, with the aid of his wife and a 15-year-old boy, during the past year secured a crop of 59,000 pounds and increased from 314 to 600 colonies.—Editor.]



House built for the bees by Mr. Weaver.

method. This keeps swarming down to a minimum, and gets the maximum amount of honey.

I find that in this land of hills bees do not travel so far for nectar as on level country, therefore I am convinced that it pays to put the yards closer and keep less in a yard. Our locations seem to do best with about 50 in a yard, and yards 2 or 2½ miles apart.

We aim to have supers enough so that we can extract at the end of each flow, as this is the only way to raise first-quality honey, and also the best way to handle a large number of yards. For an extracting outfit we use a six-frame power extractor and a one-half horse-power engine, a capping tank, and a straining tank. This outfit is moved from yard to yard, excepting the capping box. I have one of these at each yard so the cappings can drain till I come again. I believe the honey can be extracted cheaper, quicker, and easier at each yard than to have a central plant; then I can haul the honey home any time after the extracting is all done.

I always do my requeening as I get good cells along in the summer, and by the middle of August they are prepared for winter, so far as manipulation goes. As soon as the buckwheat honey is all off, about the beginning of October, I begin to move the bees home. I have an Overland truck that carries 30 colonies at a load, and, with special bottoms and metal telescoping covers, I simply stick a V-shaped screen in the entrance and the hive is ready to move. This makes moving a pleasure.

The first severe cold spell after Nov. 10 the bees are put in the cellar. During the

WHY THE SKYSCRAPER HIVE

Three Stories High is High Enough for Convenient Handling

The skyscraper hives lately appearing in Gleanings look good, but I can not understand how a beekeeper can handle bees that way. My supers will weigh about 70 pounds; and when you raise 70 pounds over your head for several hours you certainly will know you have been doing something. I can not see how you can go into your brood-nest with all those supers. I always take a look at my brood when I am putting on empty supers, and run my hives with two extra supers, and sometimes three, as some hives will become filled up before others. By having my hives three stories high they have plenty of room all the time, and I can look into one and see in a very few minutes what they need. Then it takes lots of bees to care for seven stories of honey at once, and they have a long-enough way to go in a hive of three stories.

I am enclosing you a picture of a yard I bought this spring. There were 99 hives—



Mr. Potts in one of his outyards.

shoe-boxes, nail-kegs, buckets, and a flour-barrel. One picture is before transferring, and the other afterward. I had 55 when I finished my job. They all had American foul brood. I bought queens and now have

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55 of the finest hives you ever saw of beautiful bees, and not a sign of foul brood. I sold \$480 worth of honey and \$120 worth of wax from them. They cost me \$200. Are they worth it? I traveled thru Tennessee, Alabama, Georgia, South Carolina, and North Carolina this summer in a car and



Outyard of J. W. Potts before transferring.

never saw a single up-to-date beeyard. Lots of colonies were in modern hives, but their owners do not take bee papers and do not run their colonies along up-to-date lines.

Gunnison, Miss.

J. W. Potts.

SOME ADVANTAGES CLAIMED

For This New Way of Fertilizing a Queen from an Upper Story

At any time in the average season, to fertilize a queen from an upper story with anything approaching a fair chance of success, it has been necessary to use a wire-cloth partition between that part of the lower story where the laying queen is and the combs of the upper story on which the virgin queen is waiting to take her mating-flight. Doolittle, in "Scientific Queen-rearing," records success at times in certain seasons, with only the queen-excluder between the two chambers, but acknowledges this is not a success under all circumstances.

In the A B C and X Y Z of Bee Culture a wire-cloth partition over the whole of the brood-nest is recommended. In the use of a wire-cloth partition the sole advantage gained is that the nucleus is helped by the heat rising from the colony below; and if the nucleus has but a small amount of brood and a virgin queen the advantage is small. The advantage would be greater in case a weak nucleus had a lot of brood in proportion to its size or a queen-cell not due to hatch for a day or two. With an impassable division you do not get the supreme advantage of giving the bees below the additional storage room of the upper story should a honey flow occur, nor the bees of the nucleus the help of the bees of the lower story in

the building of comb or drawing out of foundation to keep pace with the egg-laying power of their new queen should she mate successfully.

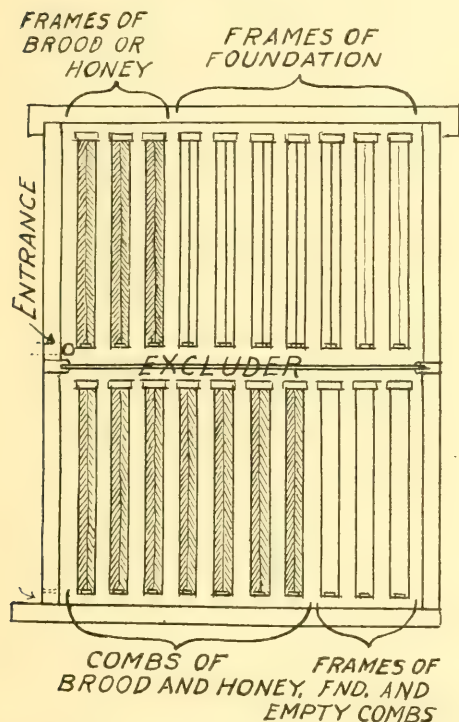
A plan which we have used with hardly a failure, and which gives the nucleus the advantage of a good deal of the heat from the colony beneath, and also the help of the bees, is as follows:

Take any colony, preferably in a 10-frame body, or even larger (it need not be a strong one, for colonies moderately strong will give good results); put all the frames containing brood to one side of the hive and fill up with empty combs, foundation or frames of honey according to the weather and condition of the colony. Over this, place a queen-excluder. On top of the excluder lay a flat piece of plain zinc or tin large enough to cover all except four or five inches of that part of the excluder under which are the frames of empty comb or foundation, so that for a ten-frame hive one would require a piece 20 inches by 10 or 11 inches. This will leave no communication between the upper story and the lower body except thru the 4 or 5 inches of uncovered queen-excluder over the empty combs. Of course, the tin or zinc should fit nice and level on the excluder so as to conserve all the heat possible. Then put on the cover, leaving the excluder and zinc still in position. Later in the evening place the nucleus on top and then cover.

The super for the nucleus should be of the same size as the one underneath—i. e., ten-frame if possible. At one end, right against the side and almost at the bottom, bore a $\frac{3}{4}$ -inch hole which is to serve for a flight-hole for the nucleus. This hole should be so located that, when the nucleus is in place, its entrance will be at the end of the hive opposite the body entrance, and will be on the same side of the hive as the brood in both stories. The nucleus may be made up in any of the well-known ways. One very good way is to go to a colony towards noon, take a frame of hatching or nearly hatching brood and one or two combs of honey with adhering bees, and place them in the nucleus hive, together with the bees shaken from two or three other combs of brood. In this way one will secure a nice lot of young bees. Next a ripe queen-cell or caged virgin should be given them. The combs containing the honey or brood should be placed on that side of the hive where the hole was bored thru the hive end and the remainder of the hive filled with frames of foundation. Do this at midday and put the nucleus on a stand near the hive on which the nucleus is to be put later, and cover till evening. Do not use any plan for making a nucleus which involves closing the flight-hole and confining the bees. There is no difficulty in making up a nucleus provided the right bees are secured, and these are the ones which have not

FROM THE FIELD OF EXPERIENCE

flown. A pint of young bees will make a thrifty nucleus, while a peck of old ones will desert and so ruin one's plans. Making up the nucleus from about 10 o'clock till noon will ensure a good proportion of young bees. Toward evening peep at the nucleus to see that sufficient bees have remained, and, removing the cover from the colony, gently place the nucleus body on the top of the plain sheet of tin and excluder, taking care that the flight-hole of the nucleus faces the way opposite the entrance of the colony beneath, and that the combs of brood and honey of both the nucleus and the colony are in both cases on the same side of the hive



Hillman's plan for fertilizing a queen from an upper story. In addition to the equipment shown in the diagram, a flat piece of tin or zinc covers all but a few inches on the right side of the excluder.

and separated by the queen-excluder covered with the plain sheet of tin.

The laying queen beneath has no opportunity of getting thru the excluder immediately beneath the nucleus, and little inducement to try to pass where the excluder is not covered with the plain zinc, as the combs beneath have no brood. The virgin above can not be worried, nor will she try to get thru the covered excluder immediately beneath her. Moreover, she has no induce-

ment to leave the combs of brood and honey, which are her domain, and go past bare sheets of foundation to the uncovered part of the excluder in order to get thru to the lower chamber. The position of the entrance also helps to keep her from wandering on to the uncovered excluder.

When the queen is mated she can be taken away and a cell or another virgin given. However, should the beekeeper be working for increase (and it is under these circumstances that the plan seems to be of most value), when the queen is found to be laying, the relationship of the queen of the upper hive with the bees of the lower hive seems to undergo some alteration, and the hostility to the virgin gives place to friendliness with the young fertile queen, and then, the plain piece of zinc or tin being found no longer necessary, the beekeeper may carefully and with the least possible disturbance, slide the piece of tin out from beneath the nucleus, leaving the queen-excluder in place, and thus leave the colony and nucleus to build up as recommended by Alexander in his treatment of weak colonies in the spring. If the colony underneath is of very fair strength, quite soon there will be two good colonies since the bees beneath will have full communication with the upper story thru the excluder; for in the average season, after the nucleus is put on top, the plain sheet of tin would not be necessary for more than the first ten or twelve days.

The success of the plan seems due to the virgin queen being offered no inducement to leave her own domain and endeavor to try conclusions with the fertile queen beneath her. In a great many cases, trouble is caused by the actions of the virgins or fertile queens themselves, rather than the workers. The three combs of brood and honey given the nucleus furnish the virgin ample room to content her, and the frames of foundation rebuff any attempt at extending her wanderings. The beekeeper must be very careful to get the plain sheet of metal over that part of the hive containing the fertile queen and brood and under the nucleus' combs of brood and honey, with the nucleus entrance in the direction opposite the hive entrance, otherwise the chances of success are lessened.

James Hillman.

Stonehouse, England.

[It would seem to me that the bees in the lower story would continue to expand on to their empty frames rather than to pass around the sheet of zinc and increase the nuclei above; and also that this zinc would prevent the heat rising from the colony to the nucleus. The plan of dividing the bodies with wire cloth does away with the danger of the virgin getting thru the excluder and killing the queen below. The plan has proved a success with some of the best queen-breeders.—Mel Pritchard.]

A GOOD deal is said about what a queen can do in the way of laying eggs, and it may be of interest to figure out just how many eggs she

actually does average daily when she has occupied a certain number of combs. If she fills three-fourths of the available cells in a Langstroth comb, counting both sides, she will occupy 7,300 cells. If it is 21 days from the time an egg is laid until the young worker emerges from its cell, then she has laid 7,300 eggs in 21 days. Dividing 7,300 by 21 gives 347.619 as the average day's work during the 21 days. Of course she has not laid that number of eggs each day. Some days she has laid more; some days less; and there is likely to be a wide range from the minimum to the maximum.

Taking that 347.619 as a basis, and relieving the queen of the difficulty of laying less than a whole egg at a time by throwing away the fractions, we may make out a table showing just what a queen actually has averaged daily when she has filled a certain number of combs. It will be: For 1 comb, 347; for 2 combs, 695; for 3 combs, 1,043; for 4 combs, 1,390; for 5 combs, 1,738; for 6 combs, 2,086; for 7 combs, 2,433; for 8 combs, 2,781; for 9 combs, 3,128; for 10 combs, 3,476; for 11 combs, 3,824; for 12 combs, 4,172.

Dr. E. F. Phillips thinks a good queen ought to fill 10 combs. That would call for a daily stunt of 3,476 eggs, some laying. Perhaps some of us have hardly realized what a good queen ought to do. At any rate I should hardly want to call any man a slacker whose queens should average 2,000 eggs daily, keeping 6 combs filled.

Some one may say that when a queen occupies 10 combs the outside combs are not half-filled. True enough; yet these are more than balanced by inside combs more than three-fourths filled. I've seen plenty of combs that I think were nine-tenths filled. Yet I don't guarantee that "three-fourths" as anything more than a rough guess, and it will be a useful thing if some one makes accurate observations showing just what a good queen does. Then I'll gladly readjust my figures to fit the facts. I have merely shown what a queen actually does average if she fills a certain number of frames three-fourths full.

* * *

On page 232, commenting on the Michigan experiments showing a loss of four degrees of heat when one side of a hive was left unprotected, and feeling quite safe that I knew the multiplication table, I said that leaving four sides unpacked would cause a loss of 16 degrees. Then I got a letter containing this: "If this is true, why could not the physicists reach 273 below zero by

STRAY STRAWS

Dr. C. C. Miller

means of a large unpacked bee-hive? And since nothing is said about outside temperatures, it is just possible we might use large beehives for ice-cream

freezers on the fourth of July." When I had got up and rubbed the gravel out of my eyes, the only thing I could think of was to wonder why it had not been suggested to have hives octagonal so there would be more sides to lose heat. Anyway, some one in Gleanings office please tell us what's wrong with my figures, and what's the right thing to believe.

[Whoever criticised you for that little point must have had a lot of nerve. It seems to us that with a given outside temperature, if the inside temperature was increased at such a rate that there was no fall in temperature inside the hive (in spite of the loss of heat), then one would be practically correct in multiplying the loss of heat during a unit of time by four. Otherwise, certain other factors would need to be considered. However, the real trouble seems to have been with the original experiment. It seems to us that no very accurate results can be expected when electricity is substituted for a colony of bees.—Editor.]

* * *

After reading the clear directions for turning a frame over to look at the second side, together with the four illustrations, page 250, I got a brood-frame, set it before my assistant, Miss Wilson, and said, "Now play that this frame is covered with bees, and look for the queen." She raised the frame, with well-simulated care looked over one side, then without using any of the orthodox motions, but with a single motion, and revolving the frame on the top-bar as an axis, she turned over the frame to examine the other side. I then asked her to do it the second time. Sorely puzzled to know what I was getting at, she repeated the performance in exactly the same way. I then showed her the pictures and told her she wasn't orthodox. "I don't care for your orthodoxy" was the retort. The fact is that she has always handled combs so well fastened in the frames that they needed no care in handling. I think I usually go thru all the motions, from habit—it takes hardly any more time—but it's not a bad thing to have combs so well fastened that no especial care is needed. [Yes, having well-fastened combs does away with one objection, but there still remain two others. During a honey flow, revolving a frame on the top-bar as an axis is bound to spill out more newly gathered honey than the way suggested. But far more important than this is the chance of injuring a choice queen. We have seen more than one queen fall in just this

way. It is much easier for a queen to keep her footing on a frame held vertically than on one placed suddenly in a horizontal position.—Editor.]

* * *

That editorial, "Necessity for Comb-honey Production," page 209, sets one to thinking. The editor asks, "Will there not be an over-production of extracted with a corresponding slump in prices?" In one sense there may be over-production, the production exceeding the demand. In the fullest sense of the word, however, there is no likelihood of any over-production of honey, either comb or extracted, for many years to come; for the production is now probably several times below the amount that could be consumed, and that ought to be consumed for the health of the nation. If so much extracted is produced as to cause a slump in prices, will not the lower prices increase consumption? And will not that increased consumption eventually increase prices? So the man who considers the greatest good to the greatest number will likely have a leaning toward extracted honey; only you cannot expect too much altruism in beekeepers, and they will likely do the thing most favorable for their own pockets. At any rate, if I can make as much one way as the other, I'd a little rather use the extractor.

* * *

One of the questions most commonly asked is, "When shall I begin stimulative feeding?" The average beginner seems possessed with the idea that unless something is done by the beekeeper the bees will not build up as they should. To any such I commend the words of Mrs. Demuth, page 221: "We have been thru the mill of stimulative feeding, spreading brood, and other early spring nursing, and doubt if any of this has ever been profitable. We simply try to see that every colony has what it needs for best development at this time and leave them alone." The only exception is in those places where there is a dearth so long continued that the queen will stop laying altogether unless fed.

* * *

It seems a little remarkable that the bees should have hit upon a size for worker-cells so easy to figure on—five to the inch—and also for drone-cells—four to the inch. It would be awkward to have some irregular size, as $4\frac{3}{4}$ cells to the inch. I'm in favor of changing to the metric system, but it wouldn't be so handy when talking of worker-cells to say "A worker-cell is 508-thousandths of a centimeter in diameter, and there are one and 968-thousandths cells to the centimeter."

* * *

On page 253 we are told that the larva in a queen-cell may be seen floating in a white thick milky substance, and "this chyle is more concentrated than that fed to either the drone or worker larva." Heretofore we

have been taught that during the first three days of a worker-larva it has the same food as a queen-larva, and is then "weaned," while the food of the queen-larva continues unchanged. Indeed, on page 254 Miss Fowls says that for three days the worker-larva "is fed the same kind of food as the queen-larva, but in smaller amounts." Now just what ought we to believe about it? [Yes, you are right, Dr. Miller, you see on page 254 I repented and decided to tell the truth about it.—Editor.]

* * *

On page 254 Miss Fowls tells about honey-ripening, and says, "This honey-ripening continues until nearly midnight; and during its progress there is a most delightful drowsy humming thruout the apiary." I'm not sure I ever saw mention of this in print before, and "most delightful" is precisely the right expression. Instead of calling it a humming I've been in the habit of calling it a roaring, for after a heavy day's work it can be heard several rods away from the apiary. Some word combining humming and roaring might be the proper term for it. If any of you beginners have never heard it, you've been cheated out of something that's rightly coming to you. Watch for it this summer.

* * *

You say, Mr. Editor, page 212, that N. A. Blake is right in putting the brood on top early in the fall. Correct; and it's even more important to have it there in spring and up to the time of storing surplus, whether bees are wintered out or cellared. As to keeping away the moth, I have known combs above the brood-nest to become wormy, but never below. Bees may neglect combs above, but are obliged to pass over combs below.

* * *

Isn't that a new kink in using the Alexander plan of putting a weak colony over a strong one, that Chas. D. Blaker gives, page 238? "After placing the excluder on the strong colony leave it uncovered for an hour or more until the bees have quieted down," and use no smoke. Looks good. [We believe G. C. Greiner sometimes uses the same plan—no smoke and leaving uncovered till the bees withdraw from the top.—Editor.]

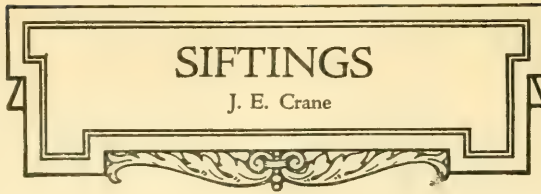
* * *

If you try to keep pure Italians in a thickly settled district where everybody keeps black bees, it "will mean that in mating you will sometimes get hybrids," page 247. How would it do to change that "sometimes" to "nearly always"?

* * *

W. E. Woodruff, page 741, wants a safe and sure device for permitting a small quantity of water to escape at a time from a big tank to water bees. I can't give that, but I think I can give something better. Just throw cork chips on the top of the water.

THAT picture on the cover page of Gleanings for April looks very much like Vermont on Apr. 1, 1919, or would if there was more snow. I thought we were booked for an early spring. March 27 was warm and balmy, snow all gone, birds singing, dust flying, and bees on the wing—when it began to rain at night and snow next morning, with a fierce north wind. Now (Apr. 1) we have an average of a foot of snow, I believe, with the wind still blowing.



I have received a sample of that wonderful aluminum comb, a whole brood-frame of it. It looks fine at a little distance, but if you examine closely, it is far from perfect. The septum or base of every cell has an opening into a cell on the opposite side, so far as I could discover, and a pretty good-sized one I thought. There seem to be other serious objections to it that I will not take the room to mention. For the benefit of other beekeepers who may not have seen a sample, I will quote from a letter from one who claims to be a stockholder in the company: "I wish to introduce to you a great invention, the Aluminum Honey Comb, and pleased to say I am a stockholder and know the comb is practical and just what they claim; also, we have honest men at the head of the company. We now have orders for more than 40,000 combs that must be turned out soon—some of them from foreign countries. Ever so many very wealthy men are trying to buy out the company. One of them is Mr. Root, the most noted beeman in the world, I think; but, as it is running perfectly all right, can not be bought at any price, which gives many others a chance to make good. We are now making a special offer to beekeepers who wish to invest in stock and by doing so may have the privilege of buying the same amount in combs at a reduced price. One hundred shares at one dollar per is the smallest amount, and not over five hundred to beekeepers." I have quoted verbatim et literatim, and more might be added in the same strain. But I have quoted enough to show that the object is rather to sell stock than combs to beekeepers. No, thank you, I have other use for my money. [Any claim that Mr. Root has tried to buy out this aluminum comb company is without any warrant whatever. Mr. Crane's "no, thank you," is very timely, until more careful tests have been made. —Mng. Editor.]

"I should like to try wintering with frames crosswise the hive," says D. G. Holterman, page 243. My experience has not been favorable to wintering on combs placed that way, unless a good way is made for the bees to pass across the combs. I

have found in such hives a large part of the winter stores packed in the rear combs, while the bees are apt to cluster in front where there is

less honey; and, unless the weather is very mild so there is a good chance for the bees to move back, they may starve with plenty of honey in the hive. In a cellar it may work differently.

* * *

I have been over every colony out of doors in our home yard and found nearly all in excellent condition, with the exception that many were short of honey and two had died from starvation. Somehow bees have seemed to consume more honey the past winter than usual notwithstanding the mild weather.

* * *

Dr. Miller, page 232, inquires how much room there was in hives with solid combs that wintered badly. Well, Doctor, truth compels me to say, not much, perhaps a half-inch. If a considerable space is left below the combs, I see no reason why bees should not winter well, especially in a cellar with solid combs above. This gives them a winter nest below instead of among the combs.

* * *

That "Clever Idea," page 210, seems to me of great value. We often run short of division-boards when, if we could use an old comb and newspaper, it would be very helpful, for we have learned one of the most helpful ways of treating a small colony in the spring is to reduce their room to the size of the colony. Sometimes these will out-run much stronger colonies left on a full set of combs.

* * *

Elias Fox, page 243, still doubts bees can hear, and he has plenty of good company. Let me tell why I believe they can hear. Some 70 years ago a somewhat noted astronomer in studying the orbit of Uranus discovered certain irregularities that he could only account for on the supposition that there must be another planet far beyond the orbit of Uranus. Not having a telescope large enough to detect any planet where he thought there should be one, he told another observer to look towards a certain point in the heavens and he would see a new planet. He looked and, sure enough, there was the planet within a degree of the calculated place. Now there are many things in this world that can only be accounted for on the supposition of something else that we may not yet have discovered, and the organs of hearing in bees is one of them. The fact that bees make various sounds at different times leads me to feel very sure they can hear. If pinched, a bee will squeal, but no one can tell how,

THE people of this world might be divided into two classes, not the old classification of the sheep and the goats, but those who like honey and those who do not. And, making due allowance for the exceptions that prove the rule, did it ever occur to you that the people who are discriminating and enjoy the really fine things of life are apt to select honey as their favorite sweet? The very word honey brings to mind June days, sunshine, fragrant flowers, and the music of birds and bees. Man has accomplished wonders in improving nature's handiwork in some directions. We all enjoy the cultivated fruits and flowers which he has developed to such a state of perfection. I would not for a minute suggest that a natural apple is as fine as a Baldwin. But when it comes to concentrated sweets, man's refined, demineralized, devitalized sugar is a most unworthy competitor of nature's only concentrated sweet, honey.

A certain man, not distantly related to me, is writing interesting letters from across the water, where he has gone in the interests of the honey business. You know on a transatlantic steamer people become quite well acquainted in a very short time, and when this man's business became known he was surprised to find so many passengers very much interested in bees and honey. On board was a Greek who had been in the United States for some months in the interests of his countrymen. He talked entertainingly of Hymettus honey and the bee-keeping industry in Greece, and then recalled that in a basket of fruit, sent to him on the steamer by Henry Morgenthau, former ambassador to Turkey, was a bottle of honey. Another passenger told of receiving honey in his steamer basket. Still another related how he had been traveling in Europe four years ago with his family, and asked the steward of the Grand Hotel, Paris, to put up a box of sweets for his children to take back home. In the box were four individual bottles of honey, put up in the United States. Evidently Jacob established a precedent when he told his sons to include honey in those vessels intended for the great man of Egypt. I like to imagine that the taste of that Canaan honey brought pleasant recollections of his childhood to Joseph.

Speaking of bringing home honey from Europe reminds me of another story I heard recently. A certain college professor and his wife spent the summer in Italy some years ago. At their hotel, among other table delicacies they enjoyed some fine honey which was frequently served. When they

OUR FOOD PAGE

Stancy Puerden

And their father Israel said unto them, If it must be so, now do this; take of the best fruits of the land in your vessels, and carry down the man a present, a little balm, and a little honey, spices and myrrh, nuts and almonds.—GEN. 43:11.

the United States and bottled less than 30 miles from their home town.

Altho I said people could be divided into two classes, those who like honey and those who do not, there is a new form of honey which gives promise of converting the non-honey eaters into enthusiastic honey lovers. This is Cream of Honey, recently brought out by a company which does a large honey-bottling business. I serve it frequently and often send it to friends, and invariably the comments are most favorable. This is a type of remark which it often calls forth: "I have never cared for honey, but that new Cream of Honey is most delicious."

Altho difficult to convince the layman, this Cream of Honey is nothing but pure honey, nothing added and nothing removed or injured by the process to which it has been subjected. It is the finest granulated honey, treated in such a way as to insure its retaining its softness and smoothness. The word "granulated" is misleading, for in texture it is like cream fondant, white as milk, and with all the delightful aroma and flavor of the honey retained. Indeed, it has always seemed to me that the flavor of honey is slightly improved by so-called granulation, and by this new method of preparation I am told that even the honeys which have a tendency to granulate coarsely are rendered smooth. This new product should prove of the greatest value to beekeepers by stimulating the sale of honey.

Cream of Honey is somewhat softer than the brick honey, formerly sold as "honey-spread," and it is uniform in texture, a thing which could never be claimed for honey-spread. It is fine to spread on hot biscuits, waffles, griddlecakes, or bread. Mixed with chopped nuts it makes a delicious cake-filling and has the advantage of being quickly prepared. Many like it on crisp wafers. And I imagine people who like this form of honey will soon find they have acquired a liking for both comb and extracted honeys.

After saying all this in praise of Cream of Honey, don't think I am claiming it is finer than a section of the best comb honey. Man never has improved, nor do I believe he ever can improve upon nature's own original package. But I believe you will be glad with me that there is a new form of honey which promises to capture the favor of the

started home they requested the hotel management to put them up a box of that honey to take back to their children. On the way home they discovered that the "delicious Italian honey" was not Italian at all but made in

unfortunate ones who have not hitherto cared for honey.

NOTICE that I am giving an unusual number of recipes this issue, and I hope they will prove useful to some busy housekeeper who likes more time out of doors this beautiful month. Most of the dishes are easy to prepare, and many call for canned vegetables or fruits, which need special care in preparation to render them attractive, when we are beginning to be hungry for the fresh things.

Those housekeepers who still have a few cans of apple sauce in their storerooms will find the apple-butter recipe economical. The Puerden family like it better than the apple butter as we buy it.

Maybe someone will accuse me of inconsistency in publishing that recipe for butter-scotch pie after saying what I have about honey and sugar. There are times when it seems to me that honey, like butter, is too valuable a food to be used freely in cooking, and I make butterscotch pie at one of those times. Also to be perfectly frank, I like brown sugar occasionally, and so do you, now don't you? The flavor hasn't been all refined away as in the case of granulated.

CREAM OF HONEY BISCUITS.

2 cups flour	½ teaspoon salt
2 tablespoons shortening	milk
	butter
4 teaspoons baking powder	Cream of honey

Mix the flour, salt, baking powder, and shortening, add milk to moisten, pat and roll out lightly on a floured board to half an inch in thickness, cut into small biscuits and bake in a quick oven until a light brown. Split, spread with butter and then with Cream of Honey and serve at once.

CINNAMON TOAST.

Toast slices of baker's bread a delicate brown, spread with butter and then Cream of Honey, sprinkle lightly with cinnamon, and serve at once while hot. Delicious for afternoon tea.

SALAD.

Canned sliced pineapple	Chopped peanuts
Cottage cheese	Whipped cream
Lettuce	Mayonnaise dressing — (Jan. issue)

Arrange the sliced pineapple on lettuce leaves on individual salad plates, place a ball of cottage cheese which has been rolled in chopped peanuts in the center of each slice, and arrange a ring of mayonnaise dressing mixed with whipped cream around the ball of cottage cheese. The cottage cheese balls should be about the size of walnuts. If a sweet dressing is desired it may be sweetened to taste with honey.

CANDLE SALAD.

Bananas	Preserved cherries
Canned pineapple	Mayonnaise dressing
Lettuce	with whipped cream

Arrange the canned pineapple on lettuce as in the previous recipe, stand a section of banana (about one-third) on each, on the

top of this place a candied or preserved cherry, and arrange the dressing as in the other salad. Fresh pineapple may be used in season.

STRING BEAN SALAD.

1 pint canned string beans	1 slice pimento
1 cup chopped celery or cabbage	1 slice onion
	Salad dressing

If the beans were canned whole, cut them in inch lengths, mix with the other vegetables and the dressing which may be either mayonnaise or a boiled dressing, and serve in a bowl garnished with celery leaves or lettuce.

CREAMED POTATOES AND CANNED PEAS.

1 pint can of peas	1 cup white sauce
2 cups diced potatoes	dash of paprika
	salt to taste

Drain the peas and add to the white sauce with the diced potatoes, heat thru, season and serve. The sauce should be a little thicker than when potatoes alone are used, as enough moisture will cling to the peas to thin it a little.

FOR A ONE DISH MEAL.

Canned peas	Cold lamb
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Mashed potato

Arrange a circle of fluffy mashed potato in a circle in a shallow baking dish and brush with cream or dots of butter or savory fat. Dice the cold lamb, mix with canned peas which have been drained, add enough lamb gravy to moisten, and pour into the center of the baking dish. Bake long enough to heat thru and lightly brown the potatoes. Salmon and white sauce may be substituted for the cold lamb and gravy, and a bit of onion may be used to season either dish. Served with bread and butter and salad or fruit this makes an easy meal to prepare.

APPLE BUTTER.

2 cans apple sauce	1 tablespoon sweet pickle
1 can commercial apple butter	syrup
	3 teaspoons cinnamon

Use apple sauce which has been strained thru a puree strainer or colander, and cook down one-half; add the spice, the sweet pickle syrup, and the can of apple butter, and cook until smooth. If the apple sauce has been sweetened before canning, the apple butter will be sweet enough; but if it needs additional sweetening use honey.

HELEN'S FAVORITE POTATOES.

Parse the required number of potatoes and slice lengthwise about half an inch thick, wash and lay the slices on the grate of a hot oven, and bake until brown and puffy. Do not dry the slices before baking, as the dampness seems to make them puffy like baking soaked crackers.

BEEETS WITH SAUCE.

1 quart can beets	¼ cup thin cream or rich milk
¼ cup vinegar	
½ cup juice	½ teaspoon salt
2 tablespoons butter	1 tablespoon honey
2 tablespoons flour	dash of pepper

Melt the butter, cook the flour in it and pour on half a cup of the water drained from the beets. Add the vinegar, cream and hon-

(Continued on page 334.)

EVEN as February was a good - luck month in permitting my attendance on the National Convention at Chicago, so early March gave me

the gift of a visit to Medina before returning home. And things which had been to me but pictures became real factories, making hives and extractors and foundation, real apiaries with their familiar grapevines and evergreens, real offices, humming with activity. And people who had been to me but names became real people—people of friendly ways and cordial courtesies and generous hospitalities. So, tho I failed utterly to ask the Editor the things I meant to ask or to discuss the things I had planned to discuss, it was a most pleasant visit, and left me indebted to all "Rootville" for a sheaf of charming memories. Will you not come to Nashville some day, you whom I met at that time, that by our welcome we may partially indicate our deep appreciation of your courtesies to me when I visited Medina?

A great deal of the trip was by night, but fortunately coming back I crossed Kentucky by day. And loved every minute of it. Indeed, just because I thrilled to it so myself it really distressed me to see my fellow passengers lounging back in their chairs, reading baseball and pugilism, politics, and photo play journals, while the folded hills went by—all the gracious panorama of Kentucky and Tennessee. Bare woods were carpeted with leaves of other years, lovely valleys dipped gently down to friendly little rills, long bluegrass stretches lay open to the sun, great rocks showed their ledges where the hills were cut. And the colors—queer, soft, rich browns and grays with reddish hints and bluish tints and the green of cedars and spruce and young tender wheat. Then came Mr. Allen, boarding the train an hour or more out of Nashville—and home—and daffodils blooming in the corner of the yard. Wasn't it a wonderful trip indeed?

* * *

This is the first March I have ever failed to examine our bees. Tho daffodils were here to greet me on my return from the North, March 9th, it was still too cold to open the hives, and in a very few days something akin to influenza had touched me on the shoulder and frowned "You, too" at me. Thus I lost most of the rest of the month.

Peach and plum and pear were in full bloom—yes, had passed their peak—when Mr. Allen and I went out to the yard on the last Saturday in March, for a first general look. Every hive was humming merrily, pollen- or nectar-laden bees were rushing into every entrance, and every colony, from this outside view, seemed prosperous and in

Beekkeeping as a Side Line

Grace Allen

good condition. Except two. One of these had an abnormal number of dying and recently dead bees in front of the entrance; the other had a great heap of

debris—particles of destroyed comb. The first one, being in the quadruple packing case, we could not get to without spending more time and effort than we were prepared to do that afternoon. At this writing it has not yet been opened. It is interesting that the other three entrances to this packing case showed almost no dead bees at all.

The other hive that showed something wrong had wintered in a story-and-a-half single-walled hive, with the entrance wide open. This hive we opened at once to account for the pile of debris in front. We accounted all right. Mice. There was not a whole shallow comb left, each one being largely destroyed. Nor was there a cell of honey left in the super. Three full-depth combs were also partly destroyed. Yet against this disaster the bees were still bravely working, and there was brood in four or five combs, some of it sealed.

This is the first time we have ever been troubled with mice, and I suppose the wide entrance is responsible. There were six other hives in that yard with entrances not contracted, but there were no outer indications of trouble in any of the others.

How did we know for sure that it was mice? The stiff and dried remains of one was still in the hive.

* * *

How trying spring conditions can be! How warm and sunny and blossomy the days and how cold and frosty the nights. We are just coming out from a particularly cold spell here, for this season, when the mornings showed ice on water in chicken yards and left us wondering about the effect on the heavy bloom of the peach trees and the brood in the beehives. Today I find chilled brood at the entrances of several colonies here at home.

Mr. Allen just telephoned to say it is warming up nicely again and would I please take the cover off his diminutive hotbed. Having done so and finding it really pleasant outdoors, I have brought writing material out here by the bees in the sun. And I want to tell you about this side-line hotbed of Mr. Allen's. He made it a year or so ago, just the size of our solar wax-extractor, and uses the glass cover from the extractor to protect his aspiring young tomato and lettuce plants. It really works nicely, and later the cover goes back into the service for which it was made. I was interested just now to notice a solid line of bees along one edge where the glass met the rim, and I wondered whether they were there because of some odor of honey and

wax still clinging, in spite of its having been beautifully washed last fall to add to the equipment exhibit at the Fair; and then stored all winter; or whether they could have been attracted by the drops of moisture that had condensed on the glass. But that was on the under side of the glass, and surely bees have more sense than that.

* * *

Again this spring we are noticing a discouraging number of bees crawling in the grass around the hives, here at home. Of course, this is the season of many deaths in the kingdom of *Apis Mellifica*. The bees that broke thru their cells last fall can not be expected to last much longer, and they must be dying off in great numbers every day. But sitting quietly here by the hives today, I can see bees all around me in the grass, crawling, hopping, climbing, rubbing heads and abdomens and showing all the symptoms of the baffling disappearing disease.

In her talk on this disease before the Chicago and Northwestern Convention in February, Miss Fowls told of several cases where it took heavy toll of bee life and brought about a serious curtailment of the honey crop. She is undoubtedly right in urging a thoro and persistent study of the disease, to establish the proper methods of combating or, better still, of preventing it.

* * *

This is April 3rd, and two Nashville side liners have already had swarms issue, one having had both a primary and a secondary swarm from his one and only colony. This is unusually early for Tennessee, perhaps to be partly explained by the heavy honey flow last fall, partly by the mild winter, and, of course, largely by the strength of the colonies, both reporting that they were tremendously strong.

* * *

The discussion between Miss Fowls and Dr. Miller as to whether there is less danger of bees starving over winter in a 10-frame or an 8-frame hive is attracting some attention among beekeepers of this section. Without doubt the arguments on this question may be somewhat modified by local conditions—"locality." It will very seldom happen in this latitude that bees will die with honey in the hive, tho undoubtedly this very thing did happen in the winter 1917-18.

J.M. Buchanan of Franklin, Tenn., L.E. Webb of Morgantown, N. C., and other successful beekeepers of the Southeast are ardent adherents of the large brood-chamber for wintering. And thruout this section the weight of opinion leans heavily towards the greater safety of the larger hive. Especially if by wintering we include early springing. As we should. More and more bees are being wintered here either in two stories or in a story and a half, with generous stores. This is a great comfort when spring comes; there is no question of having enough supplies to tide over any run of bad weather. Often,

after brood-rearing is well begun, and hives are heavy with the precious brood, there will come a week of chill, dark, rainy weather, when the bees can not fly. At such times the beekeeper whose bees are in large brood-chambers, with ample stores, sits quietly indoors and watches it rain, unworried over his bees.

In this connection I am reminded to look up a letter I received last spring from Mr. Webb, who, by the way, came thru the severe winter of a year ago with 100 per cent perfect wintering. Here are extracts from his letter of last spring: "We had (this spring) a couple of weeks of cold frosty rainy weather, and still more bees died thruout the country, running entirely out of stores with a lot of brood. Here again my big hives having a bountiful supply left, came right thru it with flying colors. Fruit bloom was killed, too, so the large amount of stores in the big hives is what saved the day and kept brood-rearing up while the small-hive colonies were starving all over this section of the State." That was a disastrous spring, following a disastrous winter, and the big brood-chambers, with their generous stores, certainly made a record, right in the midst of tragically severe losses all around.

Another thing, these big hives don't need examination so early in the spring. There is plenty of room for brood-rearing as well as supplies. Whereas in an 8-frame hive, or even a single 10-frame one, early examination is necessary; because if there is still considerable honey left, then brood-rearing is necessarily restricted by lack of room; or, if there is plenty of room for brood-rearing, it must be because stores are pretty low.

* * *

I can not resist commenting on the splendid spirit of open-mindedness shown by Mr. Crane on page 233 in the matter of shallow supers. It may not be a matter of great importance whether Mr. Crane uses shallow or full-depth supers, but it is important for each one of us to be unprejudiced and open to conviction. A frank right-about-face in a man who thinks at all is always evidence that he has been using his brains instead of his first impressions or his pet prejudices.

* * *

"We have used great words," once Wilson said,
 "Of Brotherhood and Justice wove a creed;
 We dare not fail to equal word with deed
 Lest rout and ruin o'er the world be spread."

*There shall be no such ruin. He has led
 The world's old aching heart to know its need,
 And what high ends are worthy youth
 should bleed,
 And how we must be faithful to our Dead.*

Now men who mingle in the market place
 Shall feel perchance this new-born stirring
 thrill
 Of Brotherhood atingle thru the race.
 And Justice on each plain and pleasant hill
 May find a home; while under friendly trees
 All peacefully shall hum the homing bees.



FROM NORTH, EAST, WEST AND SOUTH



In Northern California.—Your correspondent must take exception to some remarks found in E. R. Root's article entitled "California's Bee Problems," in April Gleanings. Mr. Root in writing about conditions as he sees them in the southern part of the State unfortunately gives the impression that the same hold true "all over the State." Our bees here have certainly held their own during the winter where it is, at least, as cold and there is no protection, and where there are thousands of colonies that had eight frames of brood during March. Weak colonies at this time are the result of poor management and disease. The writer agrees with Mr. Root that bees should be reduced to one story and should be protected during winter—not so much to prevent the loss of colonies or loss of bees but to secure a saving in the amount of stores consumed. The loss of heat generated by the bees and the lack of protection from cold cause increased consumption of honey. Aside from disease our winter losses rarely exceed three per cent. The problem of so many of our beekeepers is to retard early breeding and some are advocating mere three- and five-frame nuclei in the spring. These nuclei will breed up into strong colonies for the main honey flow in July. Of course, the migratory beekeeper that takes advantage of fruit, mustard, sage, or orange bloom wants his bees strong at all times and he can best bring this about thru protection and reduction during winter and by paying attention to young vigorous stock and proper manipulation during the rest of the year.

Regarding the sack plan of moving bees, it must be said that this would not be a wise one to follow during hot weather. (Imperial Valley beekeepers please take notice.) Even with a deep top-moving screen and the sacks well wetted, the writer does not believe it would prove satisfactory in real warm weather, and, under certain conditions, which it is sometimes impossible to prevent, he believes that bees clustering outside the hive could very easily be crushed. During hot weather we certainly could not move without top screens, and, with such in use, it would seem superfluous to sack colonies. If done it would require an alfalfa-meal, coffee, or, at any rate, a larger sack than can be purchased for 10 cents, as most of our moving is done during hot weather when the colonies are strong and absolutely require an extra body. In addition to this if the bees were liberated during the daytime there would unquestionably be a good deal of confusion.

The first annual meeting of the California Honey Producers' Co-operative Exchange was held in Los Angeles on March 31, and it is gratifying to the writer to announce that Willis Lynch of Salida, a director of

the Central Valley Producers' Co-operative Exchange was elected president of the State organization. Fred K. Howard, a director and secretary-manager of the Southern Valley Honey Producers' Co-operative Exchange, another northern local, was also chosen as a member of the State Board. The meeting was very successful, and members of all locals are to be congratulated upon the selection of the new board. It is a board not only representative of all sections, but is likewise made up of men truly capable, and men that will devote their time conscientiously and earnestly to the cause of co-operative marketing. The directors feel that all members will be more than pleased both as to quality and price with the ease and can chosen by Manager Chas. B. Justice of the State Exchange.

The secretary-managers of the three northern locals; namely, the Superior California, Central Valley, and Southern Valley are respectively, Mrs. Cecelia Robinson of Esparto, F. W. Burth of Modesto, and Fred K. Howard of Hanford. All our members are urged to get in touch immediately with their local secretaries relative to the placing of their orders for cases and cans.

Modesto, Calif.

M. C. Richter.

* * *

In Southern California.—As to manipulation for May, the writer would say that ordinary April manipulations will almost suffice, owing to the lateness of the season. Much swarming is likely to occur this month, as many colonies will not get strong enough to think of swarming during April. Keep a close watch and either divide or equalize all of those colonies showing swarm cells. If you think you will have a surplus honey flow during July or August, it might be best to equalize—by a transfer of brood from the strong to the weak—until all of the colonies are up to crop-gathering strength. Then make such increase as you may desire. If you use excluders, look below for the queen-cells at least once every seven days. Put one or two frames of sealed brood above, placing the frames containing either drawn combs or foundation below. Without excluders, the queen-cells, if any are drawn, will likely be found in the super, as the queen will usually go above to lay where given a chance. After extracting starts, swarming generally gives very little trouble. If you have not already done so, you had better treat all of those diseased colonies while the honey flow is good.

There appears to be a good chance for some valuable discussion as to when is the best time to ship bees from the alfalfa, sweet-clover ranges of Utah and Idaho to California. Some are of the opinion that early shipment is best—that is, just after the season closes up there. Others say



FROM NORTH, EAST, WEST AND SOUTH



around holiday time; while still others say that later would be better. Some shippers report that they have not as many bees as they had a month ago. All who have had experience know that disturbing, moving, or shipping a colony will almost always cause the queen to start laying, and brood-rearing will begin. Now it would seem that if they could so time the shipment that the rearing of the young bees would be such that the orange flow would begin just when they were old enough to get busy, the conditions would be ideal.

While we have had considerable rain during the winter and crops generally are looking well, southern California is still below normal in rainfall for this season of the year. The sages have not made the growth we would like to see, and the ground is not wet deep enough to give much reserve moisture. We cannot reasonably expect any very extensive rainfall after this time. The alfilaria, which is one of our early sources of honey, has started to blossom several times this winter; but, on account of the lack of rain, has dried up to a great extent. Since our last rain, it is again showing considerable bloom. With moisture and warm weather during the winter months, this plant often yields enough honey for the bees to build up on and to store a little as well. It is a quick-growing plant, but its roots are shallow.

The oranges are at least a month late in blooming. A prominent orange-grower told me today (March 4) that he has seen years when the dropping bloom would scatter thru the orange picking sacks as early as March 1. Today little or no bloom is out, and, unless we have very warm days, it will be a week or ten days before bloom to any extent will be seen. Usually it is several days after the buds burst open before nectar of any consequence is secreted. In those localities where there were early rains and the bees had plenty of stores, the colonies have built up well and are ready for the honey flow. The black sage has been blossoming for some time where the soil is fairly warm and moist. However, a large apiarist says that little or no nectar is being secreted—probably on account of the exceptionally cool spring.

Considerable discussion has arisen at different times concerning the promiscuous placing of decoy hives or boxes to catch swarms of bees near another man's apiary. At a recent meeting of the Board of Supervisors of Riverside County, it was decided that all boxes or hives placed in trees along the county highways must come down. It is certainly no ornament to the landscape to see the beautiful shade trees along our public roads decorated with all manner of old boxes. Quotations were read from A B C of Beekeeping showing that swarms often

go, without clustering, directly from the parent hive to a place previously selected by scouts, thereby giving the rightful owner no chance at all.

During the week of March 17-22, southern California was fortunate in having some excellent instruction in queen-rearing from Government Field Agent Jay Smith. Monday, March 17, the meeting was held in Riverside, and Mr. Smith gave a talk, with instruction in the use of the various queen-rearing appliances he had with him. Tuesday forenoon was spent in visiting apiaries, with a general discussion at the hall in the afternoon. On Wednesday the meeting was held at Redlands. The weather being rainy and cold, no attempt was made to visit the apiaries. On Thursday the meeting was held at San Bernardino. Here we were fortunate in having added to our list of instructors A. P. Sturtevant, Specialist in Bacteriology in Bee Diseases, from the department at Washington, D. C. Mr. Sturtevant has been sent to this coast especially to study the various bee diseases and is entirely at the service of the beekeepers. On Friday the meeting was held at Lamanda Park at the apiary of Mr. Stone, and on Saturday at the apiary of Mr. Mendelson of Ventura.

E. R. Root was present at all of the meetings, always ready to give any information that he could, gleaned as he said from his forty-two years of beekeeping as well as editor of *Gleanings*. These meetings have been a great help to the beekeepers. Occasionally an apiarist says he is too busy to attend meetings, but the inspiration and knowledge gained from others is worth much more than any day's work.

J. C. McCubbin, now living in Fresno but formerly of Reedley, was a recent visitor at the home of the writer. It will be remembered that our old friend "Rambler" (J. H. Martin) made his home with Mr. McCubbin before going to Cuba, where he died. Mr. McCubbin has a large collection of the pictures taken by Martin on these travels, also the plates and films. I wish somebody would take it upon himself to publish these writings, together with the pictures. It would surely be an interesting book to many western beekeepers in particular. A picture of the famous young big tree (the largest in this country for its age of 29 years) under which Martin made his home was printed on the cover of March *Gleanings*.

The writer recently visited the apiaries of Samuel Nealy, located on the great wheat fields of eastern Riverside County. Mr. Nealy is a strong advocate of migratory beekeeping. First he moved to the oranges. As soon as this excellent flow was over, he moved to the buckwheat of the desert, above Cajon Pass, getting very satisfactory returns from that source. Here he had to haul water for the bees as none was avail-



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able for a distance of about seven miles. The evaporation was very little, but the amount the bees would use per day was surprising, being something like 20 gallons per 100 colonies. Just as the buckwheat ceased to furnish nectar, such increase as desired was made and the apiaries moved to the wheat fields for the blue curl. Here it was also necessary to haul water. In ordinary years considerable surplus honey would be gathered, but a freak rain early in the fall, just when most of the little plants were in blossom, stopped the honey flow completely. Corona, Calif. L. L. Andrews.

In Minnesota.—The beekeepers in the southeastern part of the State held their annual meeting at Winona March 12 and 13. The meetings of this association are always interesting and profitable. Reports showed that the honey crop of last year was very far below the average, but all present seemed to think that the prospects for the coming season are excellent. The annual picnic will be held at Homer sometime in August. Several beekeepers in that locality have been experiencing the loss of young queens; that is, queens reared the previous fall. These queens die at the beginning of the honey flow. L. A. Stickney of Minnesota City reported that in 1916 he lost 14 per cent of all the queens in his apiary. In 1917 he lost 40 per cent and in 1918 the loss was 23 per cent. As a result of his experiments he believes that this loss can be checked by requeening from colonies that have not superseded their queens for two years. But why the loss? Can any one throw any light on the subject?

The Hennepin County Association held an "experience" meeting on March 27. The subject was wintering. The majority reported that their bees had been more restless than usual, but none reported severe losses. Those who had fed sugar reported better results than those who depended on honey alone. It was the unanimous verdict of those present that it is wise to feed not less than 10 pounds of sugar syrup in the fall after the aster flow is over.

Thru the hearty co-operation of the beekeepers of the State an amendment to the State apiary law has been secured, which provides for the traveling expenses of the state inspector. This will make it possible for him to hold meetings in various parts of the State, speaking on the subject of bee diseases, giving demonstrations, and in a special way emphasizing the educational part of the work, which is acknowledged by all to be very important. However, there seems to be a tendency on the part of some to overwork the educational idea. But experience teaches that the inspector must be more than an educational officer, for, while

all beekeepers ought to be instructed how to diagnose and treat bee diseases, some would not obey the instructions or even allow an inspector on their premises, were it not for the persuasive influences of wise legislation which provides a penalty for disobedience. Chas. D. Blaker.

Minneapolis, Minn.

In Michigan.—In response to my note in the March issue of *Gleanings* regarding the possibility of investigating the cost of producing honey under the various conditions presented in Michigan, I am sorry to report that at this time only two beekeepers have written regarding it, one of them being an Indiana producer. If this may be considered an index of our interest in the subject, I assure you it will not be mentioned again by me.

During the last two years a large number of complaints have been received regarding the poisoning of bees by arsenical sprays. During the same period, it is known that the so-called "disappearing disease" has appeared in various parts of the State. In order that beekeepers may know positively whether or not arsenical poisoning is the cause of the trouble, the College is now prepared to make analyses of bees for arsenic. There is no charge for this work. In sending in bees, an ounce is sufficient.

On April 11 and 12, there will be held at Three Rivers, St. Joseph Co., the first two-day Beekeepers' School to be held outside of the College. Beekeepers cannot all come to the College for Short Courses, so the plan is to take the College Short Course (in an abbreviated form) to the beekeepers. This Beekeepers' School is being arranged for jointly by County Agent J. M. Wendt and the St. Joseph County Beekeepers' Association. The School will be put on for the present only in counties having a county agent or a local beekeepers' association which is willing to take the matter in charge and arrange the necessary details. This requirement is made because our extension agent, Mr. Ewell, has so many demands upon his time that he cannot afford to spend the time necessary for making local arrangements and advertising.

Some of our beekeepers practice rearing some queens in their own yards from certain selected mothers. Most beekeepers prefer to purchase queens because of the work involved in rearing them. Such beekeepers could without great trouble maintain a drone-rearing colony headed by their best queen. The next best queen could be used for queen-rearing. But why rear drones? For the very useful purpose of Italianizing the bees of the vicinity. Good drones are of more importance in general for breeding



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purposes than good queens, if there must be any difference in the quality of the stock. They are more numerous and they are not the product of cross-breeding as are the queens. They inherit all of their characteristics from their mothers. They are, therefore, more prepotent than the queens and can exercise a greater influence in up-grading the stock of the vicinity. Beekeepers in some parts of the State have almost despaired of keeping Italian stock because of the predominance of black blood around them. Their young queens mate with the black drones with a consequent quick degeneration of the stock. To such beekeepers, let me suggest the rearing of such an abundance of first-class drones that young queens of the territory gradually may become Italianized. Then the neighboring colonies may produce drones that will be more desirable. To get the maximum results from the purchase of a good queen, she should not only be used as the mother of other queens, but she should be supplied with a liberal amount of drone-comb.

Readers of these notes know that two years ago the legislature passed a law prohibiting the keeping of bees in anything but hives with **movable combs**. Movable frames do not insure movable combs. In apiaries where inspectors have found illegal hives, owners have been allowed a reasonable time for transferring. It now seems that nearly sufficient time has elapsed to permit all persons wishing to transfer to do so. Therefore, after July first, inspectors will carry blank warrants to be used for causing the arrest and prosecution of all persons found with bees in illegal hives in their possession. Posters warning beekeepers of the approach of the end of the period of probation are being printed, and copies will be mailed to anyone who will post them in conspicuous places. It is hoped that every colony in an illegal hive may be transferred by July first. Tell your neighbors of this. Bring the matter up in your association meetings. Send in for copies of the law. Give me the names of box-hive beekeepers so that I can send them notices. Let us try to see that all are transferred in time so that no one will have to suffer the penalty.

At the request of the legislative committee of the State Beekeepers' Association, Hon. Colin P. Campbell, former president of the organization, prepared a bill and caused it to be introduced into the legislature now in session. The bill made an amendment to the existing law so that the State Inspector of Apiaries may quarantine a diseased area of the State and require all beekeepers in the area to register their names and the locations of their bees with the township supervisor within ten days of the placing of the quarantine. In this way it is hoped to clean out the disease from some of

the areas where it is very difficult to locate all of the bees. This bill also provides for an appropriation of \$10,160 annually for the purposes of inspection. The bill has been passed by the House by unanimous vote, and the leaders in the Senate have agreed to its passage. So, by the time this is read, it is probable that the bill will have been passed and signed by Governor Sleeper. This seems to have been the psychological time for asking for substantial support from the State. The committees of the House made a searching inquiry into the present methods of education and inspection. Several members expressed themselves as regretting that a larger appropriation was not asked for. The economic necessity of encouraging beekeeping because of the value of the industry to agriculture and for the sake of the conservation of a natural food seems to be well understood by legislators both from the country and city. Our good fortune was not accidental. It is the result of the organization of the beekeepers into units which were able to clearly express to the legislators the necessity of action. May the good work continue.

East Lansing, Mich.

B. F. Kindig.

* * *

In Ontario.—At this date (April 7) conditions as to bees and honey plants, according to reports received, are about the same as when I wrote a month ago. Wherever bees have had abundance of good stores, they have wintered in fine condition—in fact, anything else was hardly possible so far as weather conditions were concerned, as we had very little real severe weather. Clover is also in good shape at this date and barring too much alternate freezing by night and thawing by day for the next three weeks, it should again be a normal crop this season.

I have just returned from visiting the bees 90 miles away from home (about 300 colonies), and the condition they were in gave me a good object lesson on the matter of wintering as related to consumption of stores during a mild winter. The bees referred to are in two apiaries four miles apart, and, since they were left last October, they were never looked at till my visit of April 3. About half of the number are in eight-frame Langstroth hives, these being all in one yard, with about 40 others of a much deeper-frame style and larger hive in general. These eight-frame colonies were all fed solid in October—at least they were all fed till they would not take any more food from the inverted pails used as feeders. The larger hives were made heavier than the eight-frame colonies but they were not fed all they would take. Of the 150 Langstroth hives, only two colonies had starved, none died from other causes, and the greater part of them were in fine shape with plenty of



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stores for the season if it is at all normal. Of the larger hives, four were starved and about half of the balance are very short; in fact I had to feed some of them at the time of my visit. It simply bears out the well-proven fact that colonies with a brood-nest nearly solid during a mild January cannot rear much brood for the simple reason that there is no room, while others with more empty comb space rear much brood, and thus wear out the old bees and use up the stores very fast. This condition is also apparent this season in two of the yards near home where there are large and small hives in each yard. The small hives fed solid in October are nearly all in fine shape, while many of the larger hives have used a very large amount of stores, and the vitality of the bees is sapped by winter brood-rearing. This is not an argument in favor of small hives over larger hives, as I prefer the latter, but it is an argument in favor of restricted brood-nests for winter and with less empty space in the combs during early winter. Another factor that has favored the smaller hive for wintering during the last two seasons in our home locality, is the question of quality of stores. The small hives all requiring stores were, of course, given sugar syrup; while the larger hives in many cases had only natural stores that proved to be poor, as it is nearly all granulated and whole combs can be found with the cappings chewed off and the poor stuff still in the cells.

In passing, I might say that the raw sugar we fed last fall proved all right where we fed some 3,000 pounds of a bright clean quality with crystals well developed. A few bags of darker color and quality of crystals more like ordinary yellow sugar did not turn out nearly as well, as considerable dysentery showed up in colonies fed with this sugar. All things considered, I think the granulated is still the safest article, provided it can be obtained.

The conditions of the honey markets are about the same as when last reported—very dull and with dealers loath to quote any kind of price on honey offered.

At the late convention in Toronto the general opinion expressed was that honey prices must be considerably cheaper this year than in the past season, and your correspondent shared these views most decidedly. While I still think honey will be cheaper, yet present prices on other articles makes one wonder just what is going to happen in the price line of food commodities. Butter at 70 cents and meats soaring higher and higher, not to mention other items such as woolen goods, etc., makes one realize that the article upon which he depends for a living cannot get too cheap if he intends to make a living and is forced to pay very high figures for everything he has to buy. Seemingly the present high prices of honey

have seriously curtailed home consumption; and this is a serious matter, for we cannot always depend upon export markets, while we always have the home consumers to depend upon, provided we can place our product before them at a price they think they can afford to pay for it. Retailers and wholesalers tell me the home trade is very light at present, and with our local demand bearing out their statements, I feel safe in making the claim that prices are too high for us to expect home consumption to be up to former years. Whether honey is to be high or low in price, there is certainly nothing doubtful concerning the prices of supplies, as the number of supply catalogs to hand bear mute but convincing testimony. That we are not likely to have cheaper supplies for a year or two at least, I had convincing evidence while on my trip up north looking over the bees a few days ago. While up there I met a man familiar with the lumbering game, and he told me of one firm that had just sold their season's cut of pine in the log, at a price slightly over \$40.00 per thousand feet. What that will mean in lumber prices can easily be imagined.

Markham, Ont.

J. L. Byer.

* * *

In Texas.—On March 15 Governor Hobbs signed the bill creating the experimental apiaries. This bill had been on his desk but three days, having received a unanimous vote by the Legislature. The beekeepers should feel proud of their efforts in securing its enactment. From every section of the State support was given this bill, as everyone could readily see the advantages of such work. Plans are being made to start this work immediately after the funds become available. The director of the experiment station and the State entomologist are conferring with beekeepers relative to the location of apiaries and problems to be solved in the various sections of the State. It is hoped that this work can be made of immediate benefit to the beekeepers of this State. Excellent co-operation in this work is being given by the beekeepers, and such spirit will certainly aid in getting results.

On March 19 the beekeepers of Travis County organized a beekeepers' association. The meeting was assisted by the county demonstration agent. Great interest was shown in the organization, as is evidenced by the fact that 40 beekeepers from every section of the county were present. H. B. Parks, Extension Apiculturist of the A. & M. College, held several demonstrations in the county just prior to the meeting. Arrangements were made to co-operate with the State Entomologist's office to secure the appointment of a county apiary inspector. Arrangements were made for the next meeting to be a field meet.

The climatic conditions to date have been



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very favorable for a successful beekeeping year. Rains have been general and frequent so that wild flowers are abundant in all localities. In some sections flowers are blooming this year that have not been seen for two years. It is a wonderful provision of nature for seeds to hold over the unfavorable seasons.

The first of the new crop of honey was marketed in San Antonio on April 10, from Medina County. Other new honey followed closely from Wilson County. Generally speaking it seems that early honey will not be abundant. This is perhaps due to the great building up of the bees that is being encouraged practically everywhere. On every side one hears the comment on how rapidly the bees are increasing this year.

The pound-package trade has grown to some considerable proportions. Three parties already have on hand \$4000 each for bees. This demand is far in excess of the supply. The supply is further limited by the inability to get sufficient early queens.

At the last meeting of the Frio County Beekeepers' Association a unique feature was added to the organization in the form of a "clean-up" committee. This committee is to assist the inspector in the foul-brood control work. It has already shown the value of its work in taking charge of a small diseased yard, the owner of which was not financially able to comply with the law and regulations. The association thru this committee shows its interest in the disease-control work within its county. Such co-operation is most commendable and most excellent results will be obtained.

On April 1 the directors of the Texas Honey Producers' Association held their quarterly meeting. The most important topic discussed was the opening price of honey. The opening season is a critical period for honey-producers. Everyone should feel himself responsible for maintaining a good market and price by the careful disposition of his honey. Honey must not be placed on the market faster than it can be consumed. The right price can only be maintained by not rushing the entire crop of honey on the market at one time. The greatest benefit of co-operative organizations is their ability to absorb local excesses of honey and place them on the market gradually.

The beginner must remember that every colony of bees needs a great deal of attention during this month. With only a few colonies it is not wise to suffer any loss by swarming, if it is possible to manage to prevent it. In one large section of the State the beekeepers who do not want increase provide the queen with ample room in the form of an extra hive body. When a honey flow comes there are then an abundant number of bees to gather a surplus. Part of the brood, usually all of the sealed brood, is

placed in the upper hive body, and sealed frames are replaced in the lower body with frames of empty comb or full sheets of foundation.

In a small yard drones are expensive. The possible number is reduced by having good combs drawn from full sheets of foundation. If drone brood is found it should be destroyed by tearing open the cells. The bees will then clean out the injured brood.

College Station, Tex. F. B. Paddock.

* * *

In Florida.—Florida's crop of orange honey is not coming up to expectations, and tho a fair crop has been secured there are no reports of heavy yields. During the first week of the flow while cloudy weather prevailed, the honey came in with a rush, but after fair weather set in the flow slackened. Probably, the amount of honey in the State is about the same as last year, or a little more. In quality, however, this year's honey is far superior to that of last year; in fact, it is the thickest and stickiest honey we have ever produced, and great care was necessary in extracting from new combs.

Altho prices have declined there is no reason why producers should sell this crop of extra-choice orange honey at a low figure. The buyers for export are trying to secure it at about 15 or 16 cents a pound, but we can sell this year's crop in local shipments at last year's prices if we care to take a little trouble. We should remember that the bottlers and wholesale houses are stocked up with honey that was bought last year at high prices, and they cannot reduce their price to the retailer until these stocks have been disposed of. It would be poor policy to drop the price materially now, as it would interfere with the sale of stocks already on hand. Better to let the change to normal come gradually, both in buying and selling prices. Of course, the merchants will try to bring honey to the old cheap level, but we cannot allow the price to drop below 12 cents unless there is a considerable change in the cost of supplies and labor—which seems improbable. If honey should again sell at the old price of 6 cents, commercial beekeeping will no longer be profitable and the business must be carried on by the side liners.

The outlook for saw palmetto is excellent, and probably we shall get as much honey from that source as we have done from the orange. The bloom stalks seem more healthy than usual, and, as but a small proportion of the palmetto lands was burnt over, there is sure to be a big bloom.

This month is perhaps the best time for the beginner to make increase by dividing, as a three-frame nucleus will build up into a strong colony and gather some surplus in the fall.

Harry Hewitt.

Apopka, Fla.

HEADS OF GRAIN

FROM

DIFFERENT FIELDS

**Water Saved
These Bees.**

Having received word that five packages of bees were at the postoffice uncalled for, and were rapidly dying, I pocketed a flask of syrup and one of water, also a brush and sardine-tin, and went with first aid. I got permission to tend them. The postoffice authorities urged me to take the bees home before they all died; but I soon convinced them that water was what the bees needed most. The janitor used good judgment in placing them on a window-sill in the shade and air. He had tried a little sugar syrup at the suggestion of some one, but they did not care much for that. When I applied the water—say, but they got busy and cleaned it up about as fast as I got down the line of five cages, ready to go over them again. I had most of the postoffice force on hand Sunday morning interested, and even the postmaster got worked up and tried his hand at watering them. But I learned something all right; and that is that five pounds of bees took over a pint and a half of water that morning. I went down again Monday morning, and they took a little over half a pint again then. Many of those that seemed suffocated revived, and the rest were soon in fine condition.

Decatur, Ill.

Chas. A. Black.

**What Industry Can
Do for a Beekeeper.**

W. H. Kircher has 200 colonies. He has two kinds of hives, but each kind is by itself as seen in the picture, and the whole surroundings are a model of neatness. He produces extracted honey, has a ready market for his honey, and since he has had the small diseased apiaries about

him cleaned up he is succeeding well. The bees and some small fruit, principally currants, give him plenty to do. This is a good example of what persistence, industry, and intelligent management can do in an average Michigan location.

Ypsilanti, Mich.

Edwin Ewell,

Extension Worker in Beekeeping for Mich.

**Retarding the
Hatching of Eggs.**

In the September Gleanings, 1918, department of "Gleanings by Asking," J. B. Douglass questions: "Can bees control hatching of eggs?" He believes they can. So do I. To a weak colony, which already had lost two virgin queens (probably on their wedding flights), I gave another ripe cell together with a frame of eggs from another hive, and could observe that not all of these eggs hatched. Unfortunately also the third young queen was lost, and I was astounded to see that the bees started from the then-unhatched eggs new queen-cells (11 days later), one of them producing a beautiful young queen.

Guatamala.

Jose Gutman.

[I believe that the incubation of freshly laid eggs can be retarded by regulation of temperature. However, in this case, I think the eggs were stolen from another hive.—Mel Pritchard.]

**All the Queens
Were Lost.**

Last year I had a peculiar experience.

With only a few colonies I have been able to go thru them quietly and carefully about once a week and keep all queen-cells cut out. Last spring I



Mr. Kircher's apiary at Morris, Mich., the result of intelligent management.

HEADS OF GRAIN FROM DIFFERENT FIELDS

proceeded as usual, and, working quietly and slowly, kept things cleaned up all the time. In spite of care in being extremely gentle, all the colonies killed their queens. I do not believe all those queens died, as I had requeened with young stock at the end of the preceding season. That is, I had requeened most of my colonies, and had, unfortunately, lost my records so I could not tell which had been so treated. But I lost every queen, without exception, just about two weeks before white-clover bloom. This, with the fact that we had an unusually dry season during sweet-clover bloom, gave me absolutely no surplus last year.

Milwaukee, Wis. Charles B. Piper.

[We have had reports of the loss of queens from several beekeepers during the past season; and we noticed that more of our queens disappeared than usual; but that all of yours disappeared in so short a period of time is surely very unusual, and we can not account for it. Handling queens, in clipping, sometimes causes a few to be destroyed, especially if there is no honey coming in at the time; but this could hardly explain such a loss as yours. A similar report was recently made by D. P. Murry (see page 538, Sept. Gleanings, 1918).—Mel Pritchard.]

The Trailer No Good for Beekeepers.

After using a trailer with my Ford for one summer, I came to the conclusion it was a poor investment for a beekeeper. The jerk-

ing motion will about ruin a car in a short time. To pay for my experience with trailers I had the pleasure (?) of replacing one axle, one drive shaft, one differential gear, and making small repairs, to say nothing about the extra wear on tires. For a man who has very little hauling to do a trailer is all right; but for a beekeeper, nothing is better than a tin Lizzie with a light delivery body.

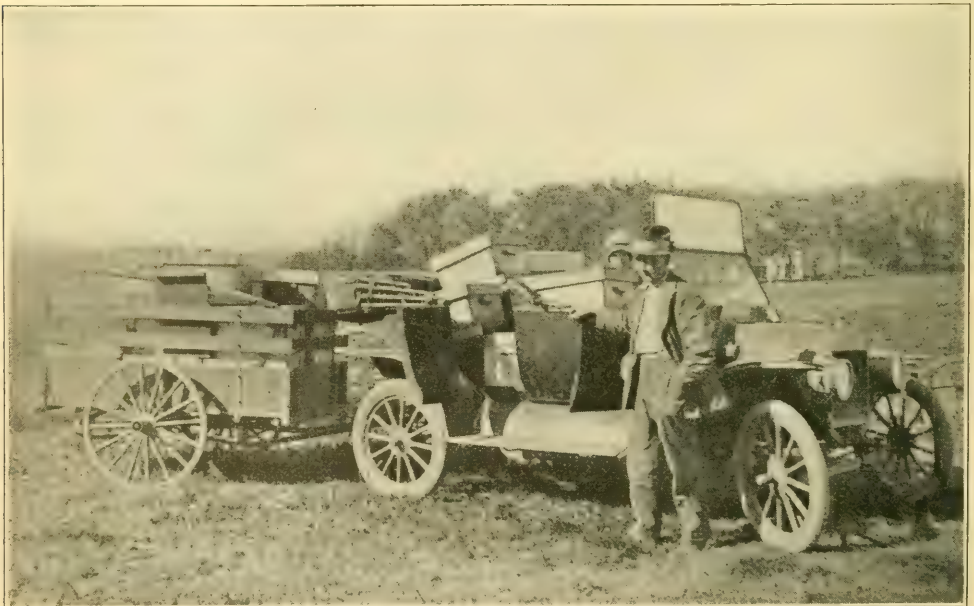
Ed Swenson.
Spring Valley, Minn.

Are His Bees Immune to the Disease?

The review in the March Gleanings of articles on the Isle of Wight disease has

been of great interest to me. I have been quite sure that the disease now prevalent in the Northwest is this disease and no other. I have lost nearly 400 colonies, ending four years ago. Only seven colonies are left out of my whole number. These seven colonies had the disease, but got over it. For three seasons I kept them simply to make sure they were all right. Last season I increased again to nine colonies. I do not sell queens now, as the bees are only hybrids. In my eagerness to keep all recovered colonies I made the mistake of letting a black queen (one of the seven) survive.

Why do I write this? Just to let you know that the symptoms (page 171) are exactly like the ones we experienced, and that diseased colonies, if they recover, will not get it again if brought in contact with



Mr. Swenson and the trailer he didn't like.

HEADS OF GRAIN FROM DIFFERENT FIELDS

diseased matter. They may even be immune until mixed again with unimmune blood. I went very thoroly into the matter at the time, deliberately infected them all, thinking either to have some immune bees, if it were possible, or else kill them that way and then start anew again.

Necanicum, Ore.

Herman Ahlers.

[Many who report these same symptoms claim that the disease has for several years affected the same apiaries. But if some seem more immune than others it would certainly be well to breed from them. For some time attempts have been made in England to develop strains immune to the Isle of Wight disease. Altho some progress has been made, we do not think they yet have a strain actually immune.—Editor.]

Keeping Bees in Argentina.

Mendoza is an irrigated province at the eastern base of the Andes mountains. It has a splendid climate, and is devoted to wine-growing and the rais-

high winds, however, both winter and summer. A number of important apiaries have been started within the past two or three years, owing to current high prices. We have started only in a small way, but hope to grow, and shall keep at it whether prices go up or down, just for the fundamental interest of the thing. We expect to keep right at section honey, for first-class trade; because most current advice and information seems to be the other way. On my cartons, I intend using the accompanying photo of my wife, handling a frame of bees. The trees in the background are *tamarindus indicus*, which grow well on alkali soil and bloom three or four times a year. The inclination of the trees shows the great force of the winds.

H. L. Miller.

Mendoza, Argentina.



In an apiary in Argentina.



Chas. VanNieda, of Co. D, 315th Infantry, A. E. F., drew this picture at the front in France, telling how he used his gas mask and steel helmet in lieu of a veil and hat to secure honey from a bee tree in the historic Belleau Wood. He said the boys in his company had plenty of honey for awhile.

ing of fruit and alfalfa. In earlier days, honey and wax were important products; then these fell off greatly, perhaps owing to the interest in vineyards, and the fact that wine presses kill a great many bees at the end of the season. At present, the only thing that beekeepers can do is to seek outlying districts as far as possible from the presses. Snow is almost unknown here, and wintering is very simple. There are sometimes very

HEADS OF GRAIN FROM DIFFERENT FIELDS

How Much of a Marvel?

"Here is a marvel: Deprived of the antennæ, the worker ceases to take any delight in labor of any kind."—D. M. MacDonald, January American Bee Journal.

Here is another marvel: Deprived of an arm or leg, a human being ceases for some time to take delight in much of anything.

Medina, O.

Iona Fowls.

Approves Wesley Foster's Method.

For some years I have been using Wesley Foster's plan of winter protection for my bees, and can not speak too highly of it, tho without bottom packing. I use also another kind of hive with entrances on four sides. The hives are 16 by 20. I use a hive-bottom $17\frac{1}{2}$ by 24, two inches deep, with rear entrance $\frac{3}{4}$ by 10 during the honey flow. When packing for winter I open the rear entrance, close the front, and stand the hive on end. I so seldom lose any colonies that I do not know which kind of hive is best.

Preston, Ia.

M. D. Smith.

Do Bees Hear?

I have heard it asked (and it seems quite queer), This mooted question, "Do honey bees hear?" And then to me it does not appear That a bee can hear when she has no ear; Yet I have noticed, when I go near A colony of bees they seem to hear.

With my smoker well loaded, I have no fear; But if it wants to flunk I stay in the rear,



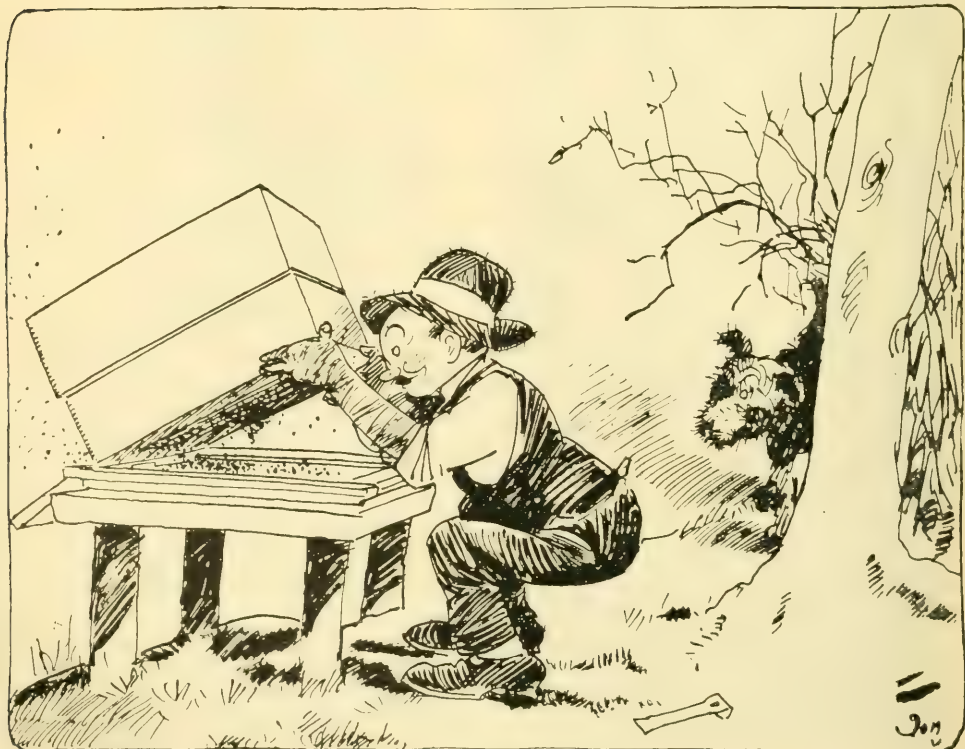
For to me it has always seemed quite clear That a bee *might* hear without any ear.

Once I decided some good queens to rear, But a sting on my nose caused a bitter tear: So I said to myself, with a vindictive leer, "I know bees can sting, if they do not hear."

REFRAIN.

To the hand-picked drone, said Miss Pretty Queen Bee.

"That soothing serenade was just written for me." S. E. MILLER.



THE BACKLOT BUZZER

Uncle Jerry Applebloom says he used to beep bees but he's got it fixed now, by ginger, so's they keep him.

THE Bureau of Markets reports that there have been shipped to date from Colorado between 75 and 80 cars of honey, with approximately 20 cars still on hand. These are divided as follows: 5 cars in Denver, 10 cars in the Montrose-Delta section, 1 car each at Grand Junction, Fort Collins, Sterling, and the San Juan Basin. When the entire crop for 1918 has been marketed the total movement will approximate 100 cars, which is about 25 cars more than were shipped from the 1917 crop of Colorado.



Editors

E. J. Atchley, formerly of Beeville, Tex., is editor of a new beekeepers' publication at Riverside, Calif., called "The California Honey Bowl." It is a quarterly publication and is owned by the "Beekeepers' League of Southern California." The first number appeared Apr. 1.

W. J. Shepard of Nelson, B. C., has just been appointed Provincial Apiarist and Chief Inspector of Apiaries for British Columbia. He will have six inspectors working under his direction.

The Western New York Honey Producers' Association will hold a spring meeting and basket picnic on Saturday, May 31, at the apiary of Emil W. Gutekunst at Colden, N. Y. One of the objects of this spring meeting is a full discussion of crop and market prospects. All beekeepers, whether members of the Association or not, are requested to attend this meeting and take part in the discussion. John N. Demuth, secretary and manager of the New York Honey Producers' Association, Inc., will be present and give an outline of the work undertaken by that Association. Howard M. Myers of Ransomville, N. Y., is secretary of the W. N. Y. H. P. A., of whom further particulars may be gleaned.

B. F. Kindig, president of the National Beekeepers' Association, sends out the following appeal to the beekeepers of the country, asking for their hearty and immediate co-operation, as follows: "During the past year the Division of Apiculture of the Federal Bureau of Entomology, Washington, D. C., of which Dr. E. F. Phillips is chief, has received its regular appropriation of \$35,000 and in addition has received an allowance of \$15,000 from the Food Production Act, a war measure. During the session of Congress just closed, the committee having in charge the appropriation for the next year cut the appropriation to \$20,000 from all sources and for all purposes. The bill, however, failed to pass. The situation now developed is as follows: Congress will again

meet in special session during May and the matter of the appropriation will come up again. Pressure by beekeepers must be brought upon all of the U. S. Rep-

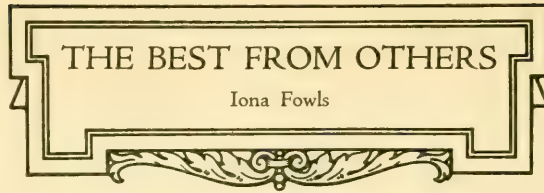
resentatives and also upon every U. S. Senator, inasmuch as it was in the Senate that the cut in the appropriation was made. This is a matter that vitally concerns every beekeeper. If you do not inform your Representative or Senator as to your desires, how can you expect them to favor a \$35,000 appropriation? This is a matter which you must take a part in. Write your Congressman and Senators AT ONCE and tell them that as one of their constituents you demand that the appropriation be left as it has been. If this is not done it will be necessary for Dr. Phillips to give up the work that the 16 Extension agents are doing in the various States of the Union. Possibly one of the Extension agents has visited your State or you know of the good work they are doing. If so, tell your Representative and Senators about the good work that is being done among the beekeepers. Tell them of the diseases of bees and that the educational work of the Extension agents is absolutely necessary to bring about the control of the diseases. Speak of the thousands of beekeepers in your State and the value of the products of the apiary; the value of pollination of the fruits; the value to the country in the establishing of the industry of beekeeping on a firm basis; the saving of the tons and tons of otherwise wasted nectar; the possibilities of the industry if properly fostered by the Government; the need of Extension agents for bringing the possibilities of beekeeping before the beginners that they may develop into producers of consequence. There are a thousand things that could be said to show your Representatives and Senators that the cutting of the appropriation would be a calamity to the industry. THIS IS YOUR PROBLEM. The securing of this appropriation IS UP TO YOU. If you fail in your duty, the appropriation is lost. If you are not interested, why should your Congressman be? Write what you feel. Say it as forcibly as you can, BUT DO IT NOW. If possible, see your Congressman personally. He is at home now. Your postmaster can tell you where he lives. After you have seen him, or when he has answered your letter, I would like to hear from you and know what they have to say. This information will be of value to our legislative committee which will visit Washington in your behalf. In closing, let me again urge you not to delay this matter. All other industries are receiving their recognition, and let us now begin an aggressive campaign to place our industry in the position it deserves."

THE "Bee-Flowers of North America," by John H. Lovell, appears in the April American Bee Journal. Some who really love nature are re-

pelled quite as readily by an article on flowers as by one on statistics, expecting to find there a tiresome enumeration of order, families, genera, species, etc., together with other dry facts and botanical expressions which they do not understand. Such a one will be happily surprised by the most entertaining way that Mr. Lovell introduces to us the flowers especially adapted to bees. He refers to the three roles the bees play as honey-makers, fruit-makers, and flower-makers, and particularly discusses the last. He says that bees alone among the insects feed their brood on pollen, and that they have been the unconscious builders of thousands of bright-colored attractive blossoms that have added so appreciably to the happiness of the world. Studying the ways in which bees have modified flowers in the past, should, he thinks, teach us useful lessons in regard to the possibilities of the future. The real bee-flowers, he shows, are quite unevenly distributed in the different plant families. He distinguishes between bee-flowers and honey plants, and says that the great group *Compositae*, such as asters and goldenrods, are not bee-flowers since they have not adapted themselves to the bee, and yet he says no other family contains so many honey plants. Special adaptations and changes of form are mentioned in connection with the lily family, orchid family, and others. It is also stated that the golden currant changes its color when it ceases to secrete nectar.

The pea family consists almost entirely of bee-flowers, many of them being excellent honey plants, such as the clovers, vetches, and locust; also the heath and blueberry, and many of the mint family.

On color Mr. Lovell makes some surprising statements. He says honeybees and bumblebees have been observed to make 20 per cent more visits to the red and blue flowers than to the white and yellow, and that east of the Rocky Mountains and north of Tennessee there are 366 red and red-purple flowers and 519 blue and blue-purple flowers, and a large part of them are bee-flowers. Experimentally he has proved that bees can readily distinguish blue from other colors, and he believes that bees might easily learn to associate blue with flowers likely to supply nectar. It is certain, he says, that blue coloration is correlated with high specialization of the corolla, and that in the absence of insects (especially bees) the colors would never have been evolved.



THE BEST FROM OTHERS

Iona Fowls

is a special queen number. Perhaps the best article is one by H. D. Murray, describing the method of rearing queens which Dr. Miller recommends to

the ordinary beekeeper. His version is about as follows:

During an artificial or natural flow, when the queen is laying freely, and comb built readily, attach vertically a strip of foundation, about two inches wide and four long, about one-third of the way from each end of the top-bar of an empty frame. Remove a comb from the hive of the best breeder and replace with this prepared frame.

In a week or ten days this will be about three-fourths full of drawn comb, the lower line of the brood and eggs forming the letter W. Trim off the comb up to the newly hatched larvæ, and insert the comb between combs of honey and pollen in a strong queenless and broodless colony, and contract the entrance to a space large enough to admit only three or four bees at a time. On the eighth day after giving the prepared comb, count the cells and kill as many queens as you have cells, and on the tenth day distribute them.

* * *

A most interesting article on J. S. Harbison, the first commercial honey-producer of the Pacific coast, is given by Frank C. Pellett in the April issue of the American Bee Journal. In order to get Harbison's 67 colonies of bees from Pennsylvania to California it was necessary to ship them to the Isthmus of Panama, freight across, and then reship to their destination, an entire distance of 5,900 miles. Finding colonies very scarce in the West, Harbison made other importations, selling 240 colonies at \$100 each.

Mr. Harbison claimed to have invented the section for comb honey in 1857, his section being a two-pound size. Sixteen years later he shipped to Chicago his first carload of comb honey—at that time probably the largest shipment ever made by one producer. Three years later, in 1876, he shipped 100 tons (ten carloads) to New York. This wonderful shipment attracted considerable interest. Among those who saw the remarkable trainload was a young man named M. H. Mendleson whose imagination and ambition were so fired that he also was impelled to strike out for California, where, some years later, he duplicated the crop that sent him west, and is today one of the largest and most successful beekeepers of the State.

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Under the title "Food for Bees" the March issue of the British Bee Journal gives the following astonishing quotations and remarks:

(1) "Toasts of bread steeped in strong ale, and put in a beehive, is very good and cheap

The March issue of The Beekeeper's Item

food" (Hartlib). (2) "Take ten figs, seething them in five pints of spring water; others seethe honey and water together" (Hyll). (3) "Beer and sugar is their best winter food" (Cotton). (4) "Turn up your hives (in winter) and sprinkle them with a little warm sugar and sweet wort" (Evelyn). "Aristotle mentions figs or any sweet things. Pliny recommends raisins or figs. Other ancients advise the use of bean flour, ground malt, roasted wardenes, apples, sweet wort, and even the flesh of a chicken! Butler recommends the last-named; and so recently as the issue of Dzierzon's 'Rational Beekeeping' it was believed in as a food for bees. Who will try it?"

* * *

That buying package bees from the South does not pay is the opinion of John A. McKennon in the March Canadian Horticulturist and Beekeeper. He claims he can raise bees a good deal cheaper than he can buy them, and that he will thus have a strain better suited to his climate. To make increase as soon as the colonies are strong enough in the spring he allows the queen two brood-chambers, and above these places a queen-excluder and a super of combs, one comb being replaced by a bar of grafted cells. The next day he grafts. The first time it may be necessary to do so without jelly. Eleven days later he makes increase by using one or two combs of these frames of brood with adhering bees and a comb of honey. For making increase, the last of July he removes the supers, and over an excluder places a hive of extracting-combs containing some pollen and one frame of brood. The next morning the bottom hive is moved to a new location, and the top hive placed on the old stand and a young queen given. [We find it a better plan to graft into a queenless colony.]

* * *

Foul brood has now reached Jamaica, which has been so long free from bee diseases. In mentioning the reason for burning colonies, Arthur W. Rogers in the February Jamaica Agricultural Society speaks of the menace of the disease, and mentions how serious it has become in the neighboring island of Cuba, 90 miles away. He says that it is only due to seasonable weather conditions and abundant flora that good returns are obtained from the bees under the great scourge of foul brood now prevailing in Cuba.

* * *

It has been claimed by some that the largest and best-looking queen-cells do not hatch. S. B. Bisbee, in the March Canadian Horticulturist and Beekeeper, says this is because they are not handled properly. They are carried about the yard, wrong side up, and also, when handling the frames, the combs are turned over instead of being turned end for end. The largest and best cells, he believes, are more easily destroyed than the smaller ones because more room is left in such cells for the growth of the lar-

væ; and the larvæ, being heavier, are more easily separated from the royal jelly. He advises not distributing queen-cells until they are just about ready to hatch. [Mr. Pritchard does not think it is entirely the handling that causes the largest cells not to hatch. He believes that, on account of the unusual size of the cell, the larva drops away from the food and therefore starves. He has known the larvæ to drop, even before the cells were completely sealed.]

* * *

"Based on an original gift of 20 hives by the American Red Cross, bee-raising as an employment for soldiers recovering from wounds or fever is being developed in the vicinity of Verdun, where reconstruction is receiving expert consideration." "The Friends' unit of the American Red Cross, which is doing this specific work, hopes that in a few months it will have enough bees for every one who has kept bees before the war." —J. N. Harting, American Bee Journal, April.

* * *

In stating his objections to the long-idea hive, G. A. Deadman, in the March issue of the Canadian Horticulturist and Beekeeper, says he has used the hive both with queen-excluding division-boards and without, and has produced both comb and extracted honey; but he does not like the hive, and feels convinced that its entire principle is wrong. Bees will store honey, he says, at the sides of the brood, but never much by choice, whereas they delight to store it above.

* * *

The difference in yields between pollinated alfalfa and unpollinated is clearly shown in the Western Honeybee (March), where we learn that Mr. Warren of Nevada who owns 1,000 colonies, and grows alfalfa for seed, has this last year, from 800 acres, harvested 800 pounds of seed to the acre, which he declares is nearly four times the yield of another alfalfa-seed grower in his valley who has no bees to pollinate his crop.

* * *

Some objection has been raised to migratory beekeepers of other States moving apiaries to California for a part of the season. In the March Western Honeybee the Superior Honey Co. briefly defends such migration, and ends by inviting the California beekeepers also to increase their crops by migrating to Utah or Idaho for the alfalfa flow.

* * *

The Honey Producers' Exchange has, in the March issue of the Western Honeybee, started a five-page department regarding the progress and plans of the California Honey Producers' Co-operative Exchange.

* * *

That southern California is now to have a good queen-breeder in the person of P. C. Chadwick is stated in the March Western Honeybee. We understand the beekeepers have felt this need for some time.

"I BELIEVE British Columbia to be a fairly good place for the bee industry, if properly handled. The winters are much milder than in Ontario,

and we have some very good beemen in the province. I have not seen any skyscrapers yet, altho I have seen some very good piles of supers stacked up. There was a fine display of honey at the Vancouver Exposition this year and the honey was all of first-class quality."—G. Guyer, Port Hammond, B. C.

"Last spring I bought about 75 old stands of old combs, dead bees, etc. They had been neglected by the owner and I had supposed that all were dead. But on the floor of the old shop where the bee junk was stored were two stands without supers and covers, and an old quilt so that they could not get out. In moving the outfit I found these two colonies very much alive. They could not possibly have had a flight for fully five months. I put them in clean ten-frame hives and they did finely, making over 150 pounds each. With this and other experiences I believe I can winter bees almost anywhere and not lose over 5 per cent, altho I have in the past lost many. I started in the hard winter of 1917-'18 with 38 stands and came out in the spring with 37."—Silas Ralls, Blaine County, Ida.

"Arkansas has been overlooked as regards beekeeping up to the present time, but the people are awakening to the realization of the fact that we have an ideal bee country. We have very few up-to-date or wide-awake beekeepers, and most of those we have are of the old type. They have their bees in 'gums' and 'rob the bees, and they can remember the time when 'grandpa cut a tree and got two or three tubs full of honey,' etc. But we have some beekeepers who are right up to the minute, and the climate is ideal. The honey-bearing plants are many and lasting. The worst drawback is the long heat of the summers, but our bees make honey all thru the warm season."—J. W. Rice, Sebastian County, Ark.

"Prospects are good in this part of the country now for a good year. The season is at least 20 days earlier than last year. Never had bees winter better."—Elmer Benge, Anderson County, Tex.

"The bee and honey industry in this vicinity is progressing nicely and sweet clover is getting started along the creeks and waste places, so I have no doubt that in a few years honey will be abundant in the dry season of the year."—Eugene Buseler, Washington County, Ark.

"Have handled bees since I was 18 years of age, and am now 54, still learning. Learned last summer not to pet my dog or horse, then handle brood-frames without gloves.

BEES, MEN AND THINGS

(You may find it here)

One of our native Apache-Mohave Indians told me to rub my face and hands with the crushed blossoms of the manzanita bush and the bees

would not sting me. Worked fine where the bees know the bush, but just the reverse where the bush does not grow. So it is live and learn."—John J. Jackson, Yavapai County, Ariz.

"The honey harvest in Denmark was nearly a failure in most cases this year; but the price is normal. Still the demand has been greater in spite of the price. Again we are singing the precious Christmas song, 'Peace on Earth,' and praised be the Lord that the war is ended—for never, never more to commence."—Anna Sommer, Ronne Bornholme, Denmark, Dec. 26, 1918.

"In my little farm apiary of 12 to 30 colonies I have not had a winter loss for four years. I winter on summer stands with chaff super on top, with tar paper for side and end protection, and a double bottom-board, and $\frac{5}{8}$ x 3-inch entrance."—D. W. Holland, Sumner County, Kan.

"Bee business is certainly picking up again in this locality. A 4-lb. pail of extracted is selling for \$1.05."—P. F. Conklin, Elmira, N. Y. Apr. 10.

"In the spring of 1918 I had four colonies left out of 96, and from the four I built up to 30 in the summer and sold 700 pounds of honey. I never saw such a flow of honey since I kept bees as we had last summer. I winter outside with bees packed in dry sawdust, with a board fence around the apiary six feet high for a windbreak."—Thos. Bartley, Cohoeconk, Ont., Can.

"Foolish question No. 6666. Do bees hear? Has any one ever heard the squeak of sealed queens answered by the piping of the free virgins on the combs? Has any one heard caged queens in separate cages in the same room pipe one to the other?"—J. H. Fisbeck, Saint Louis County, Mo.

"On Feb. 28 I unpacked my bees and placed them on a summer stand. On opening the hive March 7 I was surprised to find very little honey had been eaten and three frames of brood in every stage from eggs up to emerging bees."—B. E. Johnson, Campbell County, Va.

"The other day I went to a picture show and saw a demonstration of the handling of bees put on the screen. I thought the information would be welcomed by you. It was the first time I had been attacked by homesickness, which is so common with the boys in the service. But things looked very natural. After the show I heard remarks made about the bees, and the surprising thing to me was the number of men who did

not even know what honey looked like, never having any nor having seen it for sale. There is a wonderful opportunity for the advertising of honey in motion pictures, and after the country gets back to its normal condition there will be such a slump in the price of honey that better advertising methods will be a necessity."—Sgt. Newell Forehand, Co. C, 539 Eng., A. E. F., Zone of Advance, Latresy, France, Feb. 24, 1919.

"The past season caused a revision of opinion as to how far bees will fly and make a profitable crop. The bees of our home yard flew to sweet clover three to four and a half miles away. This is the first instance in 25 years in which we have known bees to go that far. In this case a road ran almost directly toward the clover field, the road being lined at frequent distances all along with sweet clover, so that the bees were baited, as one might say. Whether they would otherwise have found the field of sweet clover is a question."—E. S. Miles, Harrison County, Iowa.

"The 1918 honey production in British Columbia approximated 225 tons, so stated by the Provincial Department of Agriculture. This amount is small in comparison with that of American honey districts, yet it is all essentially side-line production. The professional apiarist is practically non-existent in this farthest-west Canadian province. Big-production increases here will occur when the industry gets partly on a professional basis. The side-liner's opportunity in British Columbia is not surpassed in America."—J. T. Bartlett, Kerrisdale, B. C.

"In Arizona we have had for six years a tax of five cents per colony for the support of a foul-brood inspector. Collecting the tax seems to be the only thing the inspector and his deputies have any bowels for—at least, in this part of the State an inspection consists in running up and down the rows of hives hollering 'one, two, six, nine' and then holding out a hand for steen dollars. I understand there is some kind of a muss now with the Government, as to deputies having kept all the taxes they collected so there was no money to pay the inspector's salary without dipping into other State funds. A law which permits men to collect taxes and make a report to nobody would disgrace such semi-barbarous nations as Mexico and Persia."—W. G. Hewes, Yuma County, Ariz.

"In New South Wales attention has been drawn to the fact that, owing to the amendment of the Apiaries Act in 1916, annual registration of apiaries in that State is not now necessary. When an apiary has been registered no further application for registration is necessary, but in the following cases the department must be notified; namely, where an out-apiary is established, the location of an apiary is changed, or an apiary is disposed of. The department also intimates that bees must be kept in frame

hives and that the Apiaries Act provides a penalty of £20 for neglect to observe this provision. For the last two years apiarists with bees in box hives have been treated leniently by the department, but it is now felt that beekeepers have had sufficient notice of the requirements of the law, and inspectors will in future strictly enforce the provisions of the Act."—The Melbourne Weekly Times.

"I did not have to feed a single hive last winter. I never moved a hive off the summer stand, but protect them by putting a drygoods box over each one, and that is all the protection I give them."—E. T. Josey, Walker County, Texas.

"I think the man or woman who keeps bees purely for their commercial value loses the best part of beekeeping. I keep them for company, to play with and visit with, and because I am very fond of honey; but the fun I have with them and the enjoyment I get out of it is worth more to me than the honey."—J. F. Weybright, Morgan County, Colo.

"A good many complain that their bees do not fasten the combs to the bottom-bars of the frame. If the combs are drawn from the foundation in the extracting-super, the bees will work down toward the brood-chamber, while if the work is done in the brood-chamber the combs will not be drawn down to the bottom-bar unless the bees are crowded for room."—Edwin O. Gunn, Putnam County, Ills.

"The prospects for a good honey season look very bright, owing to the extreme open winter and the prolonged warm fall. Bees have wintered well."—Arthur O. Heinrich, Nassau County, L. I., N. Y.

"I lived in southern Florida for 29 years. One year while there the saw-palmetto blooms were rich in nectar and one hive gave me 150 pounds of honey gathered from the ripe saw-palmetto berry, very rich but dark and strong. All of this that I had went to Bellevue Hospital, New York City, to be used for bronchial trouble."—Mrs. C. F. Latham, Oneida County, N. Y.

"I never knew any person to go into the beekeeping business purely for what he could get out of it that made a success of it, and I have known a good many to fail simply because they had no sentimental motive about the bees themselves."—Major Shal-lard, South Woodburn, N. S. W., Aus.

"Everything points to a good honey yield in Texas; however, the yield will not be so great as in some of the former years because of the loss of a large number of stands of bees during the past two years from drouth."—H. B. Parks, Brazos County, Tex.

"Went thru my bees on April 7 and found from three to seven frames of brood in all colonies."—Andrew Jackson, Ingham County, Mich.

QUESTIONS.—

(1) A beekeeper of my acquaintance uses the second plan while I use the first. Which is the better plan of the two for strengthening a weak hive? Plan

1: In the forenoon, when the old bees are in the fields, go to a strong hive and take a frame of sealed brood with bees on it, and place it in the weak hive. If there is danger of the new bees overpowering the bees of the hive, the new bees could be placed with their brood in an upper story with a paper between. This would not be necessary unless there were practically no bees in the hive. Plan 2: Take a frame of brood, shake all bees from it, and put the brood without any bees into the weak hive. As we have sudden changes of weather, and nights are cold, would not brood thus managed be likely to chill? (2) I have read that a queen will rear brood as fast as her bees can care for it. Is this true?

Answers.—(1) If one takes sufficient care not to get the queen, together with the frame of bees when taking this frame from a strong colony, then we would say that the first plan is better than the second. However, the skillful beekeeper, by taking suitable precautions, may remove brood, without the bees, and strengthen other colonies. It should not, of course, be done with very weak colonies, nor should it be done by the beginner. An experienced beekeeper who takes the precautions mentioned on page 275 of *Gleanings for May, 1918*, will have no trouble from chilled brood. In general, however, we should feel like recommending the first plan rather than the second. (2) Early in the spring it is doubtless true that the queen rears as much brood as the bees can well care for. Later, however, bees accumulate to such an extent that it is even possible for a colony to cast a swarm and still have enough bees left to care for the brood. Even those large colonies that do not swarm have more bees than are actually necessary to take care of the brood.

Questions.—(1) Is not the royal cell all finished before the egg is deposited in it? If not, how many days does it take the bees to make it quite ready for sealing? (2) Can the queen be fertilized more than once in her life? If so, under what particular conditions? If the number of spermatozoa transmitted to the queen in fertilization ranges between two and twenty million, how can this stock be exhausted and the queen become a drone-layer if the total number of eggs laid by the queen does not exceed two million? (3) Is it true that swarms can not transmit disease? (4) Using large horizontal hives consisting of hive body alone (no supers) should I use queen-excluders in order to restrict the queen and form in that way an artificial brood-nest. If so, in what part of the season? (5) Instead of a special partition board I am intending to use always combs only for the very same purpose. Shall these eventually be with or without honey? (6) I have read in a bee book that, while opening the hive in early spring or late fall, when there are no open cells containing honey, a little sugar syrup must be poured over each seam of bees to give them a chance to fill their honey-sacs under the influence

GLEANED BY ASKING

Iona Fowls

of the smoke. Would not that cause robbing? (7) On page 31 of the Townsend bee book I read, "The danger of robbing is enough to discourage any one from opening the hives during the spring

months except when it is absolutely necessary during that part of the year. The apiarist himself is responsible for nine-tenths of the robbing." This is all very well; but as the spring revision of the whole apiary must necessarily be made during the spring months, I can not reconcile these two things.

Alberto Szukiewics.

Papagaios Novos, Brazil.

Answers.—(1) At first there is no royal jelly in the cell. At the end of three days the egg hatches and the bees begin feeding the larvæ. This feeding continues for five days for queen and worker larvæ, and for six days in the case of the drone. (2) Ordinarily the queen is fertilized but once in her life; but in some instances queens are fertilized more than once before they begin laying. Whether this ever takes place after they begin laying is very doubtful, altho a few have reported such cases. Any queen that receives more than two million spermatozoa at the time of fertilization would not become a drone-layer because of exhaustion of spermatozoa, for it would not be possible for her to live long enough to exhaust that number. Even a very good queen would not be apt to lay more than 200,000 eggs during a season, and the queen would not be likely to live more than four or five years. (3) Swarming bees do not usually transmit disease; but we would not say that it can not be done. In fact, it could be very easily done if the bees having honey in their honey sacs were hived on drawn comb. Of course, if they were hived on foundation the honey that they carried with them would all be used up in building out the comb and supplying their immediate needs. (4) When using horizontal hives during the busy time, queen-excluders may be used to restrict the queen and shut off the brood-chamber from the rest of the hive. Before the opening of the honey flow it would be well to leave a large brood-chamber so that the queen will have plenty of room to lay. Later, just preceding or following the opening of the flow the queen may be given a smaller space if desired. (5) To a certain extent combs may be used in place of queen-excluders; but of course they are not as satisfactory for this purpose, since the queen could go past them either at the ends, top, or bottom. If combs are thus used the combs of honey would be better than empty combs, since the queen would not be attracted to the comb of honey, as there would be no place for her to lay. (6) This would cause the bees to be less cross if giving the syrup did not cause robbing. However, if the syrup leaked out at a crack or entrance, or if the hive were opened for any length of time so

that the outside bees from other colonies could get a taste, trouble would immediately start. For this reason the practice is not to be recommended. (7) The allusion in the Townsend bee book is simply given as a necessary caution. If the bees are fed a large amount of stores in the fall, and are left in good condition for wintering, it will not be necessary to open them very early in the spring. If the beekeeper knows that his colonies have sufficient stores, he need not open the hives except on very warm pleasant days during the first spring flow of honey. He may then find whether or not any of the colonies are queenless, and if he cares to clip the queens. But if the bees seem inclined to rob, this work may be omitted until a more favorable time. Of course, if the bees have not been properly supplied with stores, then it might be necessary to open at a time when robbing might be started. But for those cases in which the beekeeper feeds properly in the fall there is no difficulty in reconciling the two statements.

Questions.—(1) Wishing to strengthen some colonies, would it be feasible to take a frame of brood with adhering bees from each of several colonies, placing them above the colony to be strengthened with a queen-excluder between? (2) Would this work satisfactorily with newspaper division, or is the paper unnecessary? A. T. Copeland.

Washington.

Answers.—(1) Yes. (2) If the plan is applied on a rather cool day the hive may be left uncovered until the bees have gone down from the top, and then the super of brood, with adhering bees, may be gently placed on top. If this is done very carefully, so as not to disturb the bees, there will be no need of using a newspaper. If the plan is applied on a warm day when the bees would come to the top of the frames more readily, then we realize that the paper would not always be necessary, still we should then prefer newspaper between.

Question.—Please give in Gleanings the inside width of a 13-frame Hoffman hive. I think of changing from a nine- to a thirteen-frame hive.

Kansas. J. N. Chapman.

Answer.—Our 13-frame hives are 19 $\frac{1}{8}$ inches square, outside measurements, and 17 $\frac{1}{2}$ inches square inside. However, this leaves too little play between the frames. If the 13-frame hive had as much play per frame as the 10-frame hive there would need to be about one inch. After the frames have been used a while we believe this would be none too much.

Question.—What is the least number of chambers that must be placed between the upper and the lower stories to keep the old queen laying in the upper and have a young queen hatched and mated in the lower?

Pennsylvania.

H. A. Merkel.

Answer.—In the first place we should hardly care to mate the young queen from the lower story, for, altho some seem satisfied with the plan, we should fear the colony might swarm out. It would seem safer to hatch and mate the young queen from the upper story, and leave the old clipped queen

below. We believe that W. J. Sheppard advocates raising the young queen below with nothing but a queen-excluder between the two stories; but two queens in one hive has never worked very well in our experience unless the two parts of the hive were entirely separated. We think there should be at least one super between the upper and the lower brood-chambers; and the more supers there are between, the more likely are the bees of the two brood-chambers to behave as separate colonies and remain contented with their respective queens.

Question.—Is it necessary or desirable to paint my double-walled hives on the inside? I have heard it claimed that, if not painted, the inside wood would become water-soaked in the winter from the breath of the bees.

Frank R. Huff.

Illinois.

Answer.—There are very few beekeepers who paint the inside of their hives. If the hive is given a slightly forward tilt, so that moisture can not collect in the hive, there will be no trouble from the walls becoming moisture-soaked; and, as for the cracks, the bees may be depended upon to fill them with propolis.

Question.—In the booklet, "How to Produce Extracted Honey," it says, "Cage the queen in the hive." Do you use an ordinary mailing-cage? and do the bees feed her thru the wire mesh?

New Jersey.

Samuel A. Smith.

Answer.—When caging a queen in a hive, either the mailing-cage or an ordinary spiral cage may be used. No candy need be placed in the cage, since the bees will attend to feeding the queen thru the openings of the cage.

Questions.—(1) When a colony casts a swarm I understand the old queen goes with the swarm. If so, is the young queen hatched then or is she still in the cell? (2) Could there not be a young queen already hatched?

Thos. R. Peel.

Maryland.

Answers.—(1) When a colony swarms, the old queen goes with the swarm, leaving in the hive capped queen-cells which will hatch in a few days. (2) This may sometimes occur, but not usually. If rainy weather had kept the colony from swarming at the time they naturally would have swarmed, it is possible that one of the virgins might have hatched. Ordinarily the swarm issues several days before the first virgin emerges.

Question.—If a hive supplied with empty comb is placed where bees can find it, is it probable that a swarm will take possession some time during the summer? A man who had a few colonies claims that a neighbor of his got three of his absconding swarms in that way last year.

W. H. Craig.

Washington.

Answer.—One may easily catch stray swarms by placing decoy hives in trees in the orchard or woods near some place where bees are likely to be working. Before a colony swarms it often sends out scouts to pick out a new location. Those scouts are doubtless more apt to go in the direction in which they are accustomed to forage for honey. A tree at such a place would, therefore, be a good place in which to place the hive. Any hive will do for a decoy hive, and all the preparation you would need to

make would be to place inside the hive an old dark comb. The darker the comb, the better.

Question.—Are the golden Italian bees as good as the three-banded in regard to hardness, honey-gathering qualities, prolificness, and gentleness?

Kansas.

H. W. Behrens.

Answer.—We do not think that the golden and three-banded Italians differ noticeably in prolificness. However, since the goldens have been bred solely for color, some strains are not as good honey-gatherers, nor are they as hardy. In gentleness they vary considerably, some being quite as gentle as the three-banded.

Question.—I know nothing about practical beekeeping, but am anxious to learn. Would it be too great a risk to start with 12 or 15 colonies this spring?

Miss Clara S. Lacke.

Michigan.

Answer.—For one inexperienced in beekeeping, to start with 12 or 15 colonies would be rather risky. We would not advise starting with more than four or five at most, and then gradually, as experience is gained, the number can be increased.

Question.—Each year about this time I am troubled very much by bees robbing—not my own bees, but outside bees coming in. I saw an article in a magazine a short time ago wherein the owner stated that he gave his bees a drug of some kind in order to induce the bees to rob. I feel that this might possibly be the case, if it can be done. Is it possible to do this? If so, is there any way by which I can prevent this robbing?

Pennsylvania.

Elizabeth Stine.

Answer.—Bees do not need any drugs to induce them to rob. Any warm day, when sweets are left exposed so that the bees have easy access, they soon get a taste of the sweet, and other bees notice the unusual activity and soon join them, and in a little while a regular uproar is in progress. If no other sweets are left exposed, and no honey is to be found in the field, sometimes bees will begin stealing from weak colonies whose entrances have not been properly contracted. If this is not stopped they will remove every bit of honey from the combs of the weak colonies. In most cases suitable precautions on the part of the beekeeper himself will prevent robbing.

Question.—Will a colony of bees swarm if a queen-excluder is put between the bottom-board and the brood-chamber? What good or harm will it do?

New York.

John Stoeber.

Answer.—We have sometimes known of beekeepers, who had not clipped their queens, using a queen-excluder between the bottom-board and the brood-chamber in order to prevent swarms from leaving. Of course this would not prevent a swarm from issuing, but would keep the queen from leaving, and the bees would, therefore, return. The plan is not to be recommended, for the excluder is a hindrance to the bees returning with loads of honey and pollen. More than this, it interferes to quite an extent with the ventilation of the hive on hot days.

ANSWERED BY DR. C. C. MILLER.

Questions.—(1) How may a beginner tell when queen-cells have been accepted by the queenless

colony to which they have been given, so that he can know when to give them to an upper story of a strong colony? (2) What is the best way to build a colony up to a good full-strength colony for comb-honey production in the spring?

New York.

Garold T. Pettys.

Answers.—(1) Look at the cell a day or two after it has been given. If it is not cleaned out dry, you may know it is accepted. You will have further confirmation of this in the fact that the larva is visibly larger than when you gave it. (2) If you have only one colony, with abundant stores in the hive, the hive well protected, and at least a little honey coming in from the fields, there is nothing for you to do but to let them alone and be thankful. Any meddling on your part will be as likely to do harm as good. You may have heard of stimulative feeding, and have an idea if you feed just right you can get a colony to build up twice as fast. Forget it. If there is a lack of stores in the hive, of course you must feed. If there is an utter dearth in the fields, so that nothing can be had for many days in succession, then brood-rearing may cease unless you feed at least a little. But that is not likely to happen in many places, and probably never occurs in your locality. With plenty of honey in the hive, if your queen is worth her salt she will lay all the eggs the bees can cover, and how could feeding help? If, however, you have a number of colonies, some strong and some weak, there's a good deal you can do to get all of the colonies in good condition for the harvest. The matter is very fully given in my book, "Fifty Years Among the Bees"; and, if you don't mind my being a book agent for a few minutes, I would advise you to get the book, believing you would get the worth of your money in that one thing. I can not go fully into details here, but will try to give you the gist of it. When you find that some of your colonies have each five frames or more well filled with brood, take from each hive one or more frames of brood, choosing those that have the most sealed brood, but be sure to leave in each hive **at least four frames of brood**. Now as to the disposal of these frames of brood, which you have taken with adhering bees, being careful not to get the queen. You may think the weakest colonies are the neediest, and you should help them first. Don't do it. Help first the strongest of those that need help, the ones that have three frames of brood. When these are supplied, then help those with two brood, leaving those with one brood to be helped after all the others. It may be that you can help not more than one or two the first time going over. Be patient; wait ten days or so and go at it again, continuing at intervals of ten days, always keeping in mind these two things: never reduce any colony to less than four brood, and always help first the strongest of those needing help. Before you are thru you may find that some of those you first helped are in their turn ready to be helpers.

THERE is hardly a more delightful time of the year to work with one's bees than during fruit bloom. Those who have not yet obtained their bees will wish to do so this month. The best time for moving them is in the spring before the hives become heavy with honey.

It will be remembered that in the February issue the advice was given to buy entire colonies if possible, otherwise nuclei on combs, or, preferably, combless packages. Those who have purchased combless packages or who will obtain them this month will probably have no difficulty in building them up, if the queen is successfully introduced and the directions followed that accompany the bees. They must, of course, be kept supplied with stores until the honey flow. It is to be hoped that the beginner may have at least one good colony from which he may take one frame of sealed brood to give his package bees; also if they can be given frames of comb instead of frames of foundation they will build up much more rapidly. A two-pound package should have at least four combs, and a three-pound package six. More may be added later as the colony increases in size. These combs should be shoved over to the side of the hive and a division-board placed at the inside. Crowding the frames over to one side like this gives a smaller space for the bees to keep warm and therefore results in less danger of the brood chilling on cool nights. Also the hive-entrance should be contracted to but a small opening in order that the brood may not chill and die, and that robbers may be prevented from entering the hive. Bees from other colonies near sometimes overpower a small nucleus and steal their stores; but, with a small entrance about $\frac{3}{8}$ by $\frac{1}{2}$ inch, the bees of the nucleus can more easily repel such unprincipled invaders. Of course, after they build up a little the entrance may be enlarged somewhat.

Two- or three-pound packages purchased early this month, and given a little unsealed brood, will, with slow feeding, build up into good colonies in seven or eight weeks, and therefore will in many places be strong enough to gather honey during at least a part of the honey flow.

Starting with Entire Colonies.

Most beginners will doubtless be able to obtain entire colonies, which is a much better way of making a start. As stated in the February issue, such colonies should first be examined by a good beekeeper to make certain they are not diseased, and also to place what he considers a fair value on them. Their worth will depend on the style and condition of hive, strain of bees, quality of

TALKS TO BEGINNERS

By Iona Fowls

queen, size of colony, freedom from disease, amount of stores, regularity of the combs, and amount of drone brood present. If any disease is found

the colonies should not be taken, even as a gift.

Taking the Colonies Home.

Moving the colonies is a very simple matter in case they are in modern hives, and, if care is taken, colonies may be prepared for moving without one bee leaving its hive. Toward night or in the morning, when no bees are flying, remove the entrance-block and into the entrance shove a stiff strip of screen about three inches in width and as long as the entrance, taking pains that it fit tightly so that no bees can escape. Next gently remove the cover and immediately cover with a screen attached to a rim two inches in depth, fastening this to the hive with a long staple at each corner. This leaves a nice clustering-space over the colony, and provides plenty of ventilation. As the bees are jolted along the road they become so active that the temperature in the hive is increased considerably; and, unless plenty of ventilation is supplied, the bees may suffocate. When the weather is cool, less ventilation will be needed, and the screens may, therefore, be partly covered. The bottoms should be attached to the hives by means of a staple at each corner.

If the bees are in old out-of-date hives, with cracks here and there, special care should be taken that the bees be shut in securely; and in order to be on the safe side it might be well, when the weather is not too warm, to sack them, as described by E. R. Root, page 214, April Gleanings. We caution the beginner, however, not to handle bees after dark as there described. The expert beekeeper may occasionally do this as a matter of expediency; but from our own experience we know there is no pleasure or poetry in the operation.

When colonies are moved a distance less than a mile many of the bees often return to the old location and are lost. To avoid this, when it is desired to move a short distance colonies should be moved to a place two or three miles away, and then a few weeks later placed in the desired spot. They may be moved a very short distance by moving gradually a foot or two every two or three days.

For moving bees, the best conveyance by far is the auto. If driven carefully there is very little danger of breaking the combs. Whatever conveyance is used, the hives should be placed in such a way as to prevent the combs swinging because of sudden jolts.

Placing the Hives.

On arrival home the hives may be placed, if convenient, where there will be winter

protection from prevailing winds and where there is a little shade during the hottest part of the day—perhaps out in the back yard under the apple tree, but facing away from any path where people are frequently passing. Bees do not like moving objects close in front of their entrance; nor do they approve of rug-beating or tennis-playing too near their homes.

Those who live in the city may be obliged to keep their bees on the roof or in the attic. Colonies placed in an attic should be near the wall and have an outside entrance. There should also be a window that can be opened to allow the escape of bees that will collect on it whenever the hive is opened.

Colonies Need Not Annoy Neighbors.

In case any neighbor is a little timid concerning the bees, we advise placing the colonies facing a trellis or other high obstruction so that the bees will be compelled to fly high on leaving the hives. Also the neighbors should be cautioned never to leave sweets exposed where the bees may get a taste and start robbing; for, of course, such robbing would make the bees very cross. It might, moreover, be a good plan to get the neighbor somewhat interested in the bees, perhaps by giving him a little peep inside the hive on a nice warm day when the bees are gathering honey, and are, therefore, good-natured, and also by giving him a sample of the honey when the crop is harvested.

Supplying Stores.

As soon as the hives are placed, the cover should replace the top screen, and the entrance screen should be removed so that the bees may have a flight. They will need proper ventilation, but the entrance should not be too large since colonies just moved are more likely to be attacked by robbers. Probably a $\frac{3}{8}$ by 8-inch entrance would be about right. The next day or so, if it is found they are short of stores, the cover should be removed, an empty super placed over the brood-chamber, and a cake of candy left on top of the frames. The candy and tops of the frames should then be covered warmly with burlap or carpet, and the cover replaced. For such feeding we recommend the candy mentioned in an April editorial. From now until the honey flow all colonies should be kept supplied with plenty of stores in order that brood-rearing may progress rapidly.

Transferring From Old Hives.

Some time this month, before the hives become heavy with honey, and on a pleasant day when many bees are out after nectar, those colonies in old hives with unmovable frames should be transferred to modern hives. The following is an easy way of transferring:

Remove the old hive from its stand, and in its place put a new hive, facing in the same direction, and filled with frames of foundation, or preferably drawn comb. There should be one comb containing a

patch of young larvæ (unhatched bees which look like little white worms). If one has no full colonies from which to take these larvæ, he may with a little trouble get a piece of comb containing such larvæ from the old hive. After smoking the colony a little, remove the bottom-board and place the old hive over the new, tacking on strips, if necessary, so that there will be no open cracks between the two hives. Then blow smoke down thru the old story, gradually driving the bees and queen below, after which insert a queen-excluder between the two hives. A few days later examine the lower story to see whether the queen has begun laying below. If not, it is probable she is still in the upper story. To get her below, again place the old hive of brood over the lower hive, leaving out the excluder, and again drive the bees below with smoke, making certain this time that the queen also goes with the bees. Then insert the queen-excluder between the two hives, being sure to leave the excluder right (deep) side up. In 24 days after the queen has been driven below the brood will all be hatched from the old hive, when it may be removed, and the combs saved to be rendered into wax.

When no combs are obtainable, colonies may be transferred into the new hives on to frames of foundation, and then fed continuously until the foundation is drawn out into comb; but it gives the bees a much nicer start to give them drawn combs, always making certain, of course, that the combs are not from diseased colonies.

Improving the Stock.

Good Italians may be recognized by the three yellow bands on the abdomen. This strain is gentle; they are good honey-gatherers, and quite resistant to disease. The blacks are easily distinguished by their color. They are very quick and nervous, rather cross and not very resistant to disease; perhaps not quite as good honey-gatherers as the Italians, and much more inclined to rob. The hybrids are a cross between any two strains, but "hybrids" generally refers to a cross between Italians and blacks. Hybrids vary considerably in their characteristics.

Unless the bees of a colony purchased show at least two yellow bands, the beginner will probably wish to requeen, for no matter what the strain, the entire colony may, by the simple substitution of an Italian queen for their present one, be changed in six to eight weeks into a fine Italian colony. To requeen, it is only necessary to find the old queen and kill her, and then introduce the new one according to the directions that accompany her, not opening the hive for four or five days after introducing.

Why Clip the Queen's Wings?

When for any reason a colony becomes dissatisfied with its home—usually because of insufficient ventilation or a crowded condition of the brood-chamber or supers—they start preparations for swarming. When

colonies swarm, two-thirds or three-fourths of the bees, together with the queen, leave for a new home. To prevent swarming, therefore, certain measures should be taken, among which is the clipping of the queen's wings. (Other preventive measures will be mentioned later.) Having the queen's wings clipped does not prevent the colony from swarming, but it does prevent their leaving for new quarters, because, at the time the swarm issues, the queen, finding herself unable to fly, finally crawls back into the hive, and the swarm, unwilling to leave without her, is compelled to return.

Finding the Queen.

During the warmest hours of a day when the bees are gathering nectar the queen may be found on one of the frames of brood—probably on one containing eggs. A very good queen may be found quite readily because of her unusual size, stately bearing, and her little retinue of attendant bees that form a circle facing toward her caressing her with their antennæ whenever she stands still for a moment.

Small and inferior black queens are usually quite excitable and much harder to find. To locate such a queen, sit with the back toward the sun and beginning at the furthest side of the brood-nest, and using very little smoke, carefully remove one comb after another until the frames of brood are reached. She will doubtless be on one of these. Therefore examine each of these very carefully. If she happens to be on the comb pulled out, she will often run to the furthest side of the comb, or she may run to the unexposed side of the adjacent comb, which is the side that first comes in view on removing the next frame. Therefore, glance at the exposed surface of the next comb before examining the one removed. After looking the frames all over twice if the queen is not found, the hive should be closed and the bees allowed to become quiet before another attempt is made. And if he still fails to find the queen, the beginner may be obliged to resort to the method given under the "Field of Experience" in this issue.

How to Clip.

When found, the queen should be carefully picked up by the wings or thorax, but on no account should she be held by the abdomen, as she is very easily injured by such handling. With the thumb and fore finger of the left hand hold the queen securely by the thorax, bringing the second finger under her so she may grasp it with her feet, thus keeping her feet out of the way when clipping; for unless care is taken a leg might be accidentally cut and the queen rendered useless. Holding a pair of sharp scissors as shown in the cut, and remembering that clipping a wing is probably no more painful than clipping hair, cut off about one-half or two-thirds of both wings on one or both sides. Cutting the wings of one side is sufficient to prevent her flying, but some prefer cutting on both sides, since it is a little easier to

find such a queen because of her changed appearance.

Other Work Preceding the Flow.

In case some colony becomes too crowded and starts queen-cells, they should be torn down and more room given. The better plan, however, is to give the super early enough so queen-cells will not be started. Those colonies that become crowded for room early in the season, while the nights are yet quite cool, should have a super of empty combs placed under the brood-chamber. This will enable the queen gradually to extend her brood-nest lower, and will leave the brood all in the warmest part of the hive where there will be no danger of chilling.

Two or three weeks before the opening of the main honey flow, when the nights are warmer, those colonies that become crowded for room may be given a super of combs or foundation immediately above the brood-chamber, and two frames of eggs and larvæ from the lower story placed in the upper one, replacing with empty combs or foundation. Or, if preferred, the order of these two stories may be reversed. It is to be hoped that combs may be used; for if foundation is used when no honey is coming in, it is necessary to feed syrup in order to get the foundation drawn out; and one always objects to feeding syrup too near a honey flow for fear of getting syrup stored with the honey. When some brood is thus kept in the second story the bees become so accustomed to occupying the second story that they store above readily when the flow actually starts. A week or so after the opening of the honey flow, the queen should be placed below and a queen-excluder inserted between the two colonies.

If directions are followed, swarming can probably be prevented this month; and as a general thing those colonies that do not swarm are the ones that store the most surplus. On the other hand, if one desires to increase he may insert a queen-excluder between the two stories, leaving the queen below and tear down all capped cells. Eight days later move the upper story (this time leaving the capped queen-cells in order that a new queen may be raised), and leave with contracted entrance so the brood will not chill. This subject will be discussed at greater length in our next issue.

Beginners' References.

See pages 291, 293, 296, 322, and last paragraphs of 312 and 306. "Daddy Lowe," is particularly helpful, and yet, if he had not been more interested in Anne than in the bees, he would have added certain other remarks. At the foot of page 291, he would have added, "Also having young larvæ below will cause part of the bees to stay below to care for it, and thus there will be no danger of the bees entirely deserting the lower story, and leaving the queen alone." Also later on he would have added, "Better have all the weight on the side next you, then tip the super toward you when lifting."

MY Dear Friends: I am getting to be an "old man," and very likely I shall tell you of things of long ago that I have told, maybe, over and over again; but I think some of it may be new, or new to some of my hearers.

When I first became a member of the Medina Congregational Church, or perhaps a little before, I went out on the street, in front of my store, and invited neighbors and all to "come to church."

My next neighbor, a grocer, replied, "You mean, of course, come to *your* church?"

"No," replied I, "Come to *any* of our Medina churches. We are having excellent union meetings."

A bystander remarked, "Oh, Mr. Root, that is 'too thin.' We all know every man is working for his own church."

At this point the first speaker gave me a challenge. Said he: "Mr. Root, there are five churches in town. You get all five ministers to stand side by side in one pulpit, and I will come to church." A chorus from the crowd responded with "I" and "I" and "I." Then they laughed and "jeered" because they thought they had me "in a corner."

I wasn't to be balked, however, and I replied, "Good! I will do it, and I will start right off this minute to arrange for it."

Four of the five clergymen welcomed the invitation, but the fifth objected. He coldly replied that had I known anything of the rules of their denomination I would not have come on such an errand. I went out feeling that I had been somewhat "snubbed." Now, friends, comes one of my first experiences of quick answers to prayer. This parsonage was about half a mile out of town. On my way back I prayed out loud that my new-found Savior and Redeemer would take the matter in hand and do what I had failed to do. I confess that I was a little stirred up at my rebuke, but while I was talking I heard rapid, heavy footfalls on the wooden sidewalk behind me. A good brother came up and clapped his hand on my shoulder and said, "Mr. Root, our pastor has reconsidered his refusal and bids me catch you before you get back and say *he will come*, and will take such part in the meeting as you may wish."

It was noised around town and a great



"In all thy ways acknowledge Him and He shall direct thy paths."

crowd filled the church. I asked the five pastors to speak 10 minutes each. Of course they were glorious sermons or "sermonettes." May I venture to say that I have liked short sermons ever

since? And do I need to tell you that quite a revival followed? There may be some in this audience who came "out of darkness into light" at those very union meetings that followed.

At one church there was trouble about getting the janitor to have the church warmed and in order. I went to see him. He said the church refused to pay him extra for so many more meetings. They hired him by the year. Said I, "Mr. T., how much do you think you should have to make it fair and christianlike?"

The meetings went on and some of that church asked why the janitor had all at once become so pleasant and willing. He replied that I had paid him the extra. A good brother called for a collection to pay back what Mr. Root had paid *their* janitor. With the "revival on" they soon got enough and more too.

Among the converts was a young man just starting in the grocery business. He came to me, asking what I thought about his selling tobacco. He said he did not care so much about selling to grown men, but it hurt his conscience to sell to young boys. I suppose you know what A. I. Root would say. Well, he came to me later in great trouble. One good customer who had called for quite a lot of goods, when he found our young friend was not going to keep tobacco any more, went off, leaving his goods on the counter, to trade where they were not so fanatical. I asked the grocer to go with me and talk with our pastor. After a season of prayer the good minister put his hand on the young man's shoulder and said, "W., don't be worried, for as long as you are listening to the voice of conscience, as you have told us, *God will take care of you.*"*

During the 40 or more years that have passed, groceries, many of them, have been started in Medina, many of them *fine ones*, but none of them have stood the test of 40

*In the hymn book, Alexander's Gospel Songs, is a beautiful hymn that we often sing in our Presbyterian Sunday School entitled, "God Will Take Care of You." When we sing it I often think of the young grocer of years ago.

years except this one. It is still a fine store and doing a fine business.

"A LAND FLOWING WITH MILK AND HONEY,"
IN PLACE OF "BEER AND BREWERIES."

The clipping below, which I take from the *Sunday School Times*, tells us just how it is coming to pass.

WHY STEEL COMPANIES ANNEX DAIRIES.

The big steel companies, according to W. E. Skinner, General Manager of the National Dairy Show in Columbus this year, have found it practicable to go into the milk business to the extent of buying it wholesale and selling it to their workmen at cost. "Men soon go to pieces who drink liquor after working over hot fires," he explained to the newspaper reporters. "The fires start them on the decline and booze finishes it. But manufacturers have found that milk not only rebuilds tissue and overcome the harm that heat and flames have done, but it keeps the men away from the saloons and thus does double duty."

I have long been expecting something of the kind, and may the Lord be praised that it is already under way.

HONEY FROM THE PEANUT, AND SOMETHING MORE ABOUT MOORE HAVEN.

A. I. Root, Bradentown, Fla.

Dear Friend:—I just ran across something here that I am sure will interest you. H. P. Merseran of this place furnished the honey, so he told me yesterday, which took the blue ribbon at the Kansas City exposition. The exhibit was made by Mr. Rollo in the name, I believe, of the South Florida Lands Co. and the honey was samples of comb and of extracted honey. Mr. Merseran has about 30 colonies here and says they are doing well. I will say that the honey they produce here is fine—quite similar to clover honey, as it comes mostly from the peanut blossoms. Moore Haven captured pretty nearly everything on vegetables and grains, including the grand sweepstakes prize, for best display of all varieties of farm crops.

Mr. Merseran tells me that while this is a fine honey-producing region it isn't a beekeeper's paradise, as there are many pests to contend with, not the least of which is the moth. This pest will occupy the combs many times even in a strong colony. But I guess we have to fight for what we get almost anywhere. We just have different things to contend with in different places. Your friend,

LEON C. WHEELER.

Moore Haven, Fla., Mar. 13, 1919.

SWEET CLOVER FOR BOTH CORN AND HONEY.

On page 373, June GLEANINGS, particulars are given of a wonderful crop of corn produced by turning under sweet clover. C. A. Neal of Jonesboro, Ind., who believes he has discovered an improvement on the plan, writes to me as follows, describing what he calls, "The New Neal System of Sweet Clover Farming."

"Here it is: Sow scarified sweet-clover seed in corn on July 1. Run thru the corn with a one-horse weeder, that has 14 small teeth about one inch wide, to cover seed. Next year don't touch it at all. Supposing the seed was sown July 1, 1919, then on the first of October, 1919, take a Mogul tractor with two plows and weed tuckers, and turn under the full growth, which goes 30 tons to the acre exclusive of roots. In the following spring put in

corn, and on the first of July sow to sweet clover again. In this way the farmer gets a crop of corn every other year, and I get a crop of honey every other year. The humus and moisture supplied by the 'rotten' sweet clover will double the yield of corn, and the corn-belt becomes a beekeeper's paradise. "It's a poor rule that won't work both ways." Put your shoulder to the wheel, A. I. Root, and give the new Neal system of farming a life. A full untouched growth of sweet clover turned under and the field sown to wheat means at least 50 bushels to the acre. The same rate of increase holds for potatoes, oats, rye, sunflowers, and hay. Pastures produce ten times as much feed, and this feed will make healthy stock because of its tonic qualities. My statements are not an idle dream, but have been proved by actual test. The clovers now in use will not turn under right, as they choke the plow. Besides this, they do not rot when turned under, and so cause the ground to dry out and reduce the yield of corn. Any kind of rotten vegetable matter turned under holds water like a sponge all summer, no matter how dry it becomes. Let us christen sweet clover the 'magical lamp.' Rub that lamp, and the farmer will enter a new era of prosperity. To use your own words, 'May the Great Spirit above be thanked for this great gift to man.'"

C. A. NEAL, Bee Specialist.

Jonesboro, Ind.

BACK TO OUR MEDINA HOME.

Mrs. Root and I expect to be back in our Medina home about the last week in April. The following from *The Bradentown Herald* of April 9 may interest our readers:

THE WIND ELECTRIC AUTOMOBILE UP TO DATE.

Editor Herald:—All great inventions that have blessed the world in times past, it seems, have had to pass thru a sort of evolution, or series of experiments before coming into general use. The wind-propelled electric auto is no exception to this rule.

When the Wind Electric Corporation of Wyndmere, N. D., was consulted they replied they had never undertaken to make the wind replace a horse, but they were willing to try it. Again it was a question whether the belt they used would stand the hot wet summers of southern Florida. As a result the fabric belt used for lighting residences, gave out down here in about six months. At this stage I had consulted the Goodyear Rubber Co. of Akron, O., and they felt sure they could give a belt that would "stand up." Such a belt has now been running over six months, day and night, winter and summer, and is apparently unharmed. Again the Windmill folks supposed a heavy generator or dynamo would be required to run a car and sent one with the mill weighing about 400 pounds. Recent experiences induced them to believe one weighing less than half as much would give more "juice" for the car. Such a generator has just replaced the heavy one, and I am happy to state, I not only get more miles daily with the auto but it also lights our home very successfully. Therefore I can now say, "My steed requires no hay, oats, or corn, but feeds only on wind," and still more, he now converts said wind into light. Who knows but that wind may ultimately be the light of the world?

It may be well to add the electric auto has already during the past winter made close to 1,000 miles, and a good deal of the time it has carried quite a load of our new potatoes (over \$200 worth) to market. Of course the wind is lost when the machine is out on the road, but I am planning (if spared) to have extra batteries during the coming winter to store for the house lighting, when the machine is out on its trips.

A. I. ROOT.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

Buckwheat honey in 120-lb. cases, at 17c per pound. C. B. Howard, Geneva, N. Y.

FOR SALE.—Clover, amber and buckwheat honey in 60-lb. cans. C. J. Baldridge, Kendaia, N. Y.

FOR SALE.—Clover and buckwheat honey in 60-lb. tin cans. H. B. Gable, Romulus, N. Y.

FOR SALE.—Extra-good quality clover or white aster honey, packed in 60-lb. tins, two in a case. H. C. Lee, Brooksville, Ky.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Extra quality buckwheat extracted honey in 60-lb. cans. J. W. Hosie, East Aurora, N. Y.

FOR SALE.—Buckwheat honey in 60-lb. cans, 2 cans in each case; 14 cases. Make me an offer f. o. b. here. Robert Conn, Roaring Branch, Pa.

FOR SALE.—5 kegs of best N. Y. State buckwheat honey to the highest cash bidder. S. V., c o Gleanings in Bee Culture, Medina, O.

FOR SALE.—Michigan's Best extracted honey in packages to suit; white clover, raspberry, milkweed, buckwheat. A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE.—40,000 lbs. of No. 1 extracted clover honey and 35,000 lbs. of aster honey, both of extra-light color, heavy body, and fine flavor, in 60-lb. cans. W. B. Wallin, Brooksville, Ky.

FOR SALE.—Clover, heartsease. No. 1 white comb, \$6.00 per case; fancy, \$6.50; extra fancy, \$7.00. 24 Danz. sections to case; extracted 120-lb. cases, 25c per pound. W. A. Latshaw Co., Carlisle, Ind.

HONEY AND WAX WANTED

Small lots of off-grade honey for baking purposes. C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

WANTED.—Section honey. Correspondence solicited. J. E. Harris, Morristown, Tenn.

Beeswax wanted. Highest prices paid. State quantity and quality. E. S. Robinson, Mayville, N. Y.

WANTED.—Comb and extracted honey, also beeswax. Send samples. C. S. Fryer, 386 Halsey St., Portland, Ore.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED.—Comb and extracted honey, car lots and less. Mail sample, quantity, and price. W. Morris, Yonkers, N. Y.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations. M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.

Hoffman & Hauck, Inc., Richmond Hill, N. Y.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston. M. V. Facey, Preston, Minn.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

FOR SALE

HONEY LABELS.—Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—Good second-hand cans. 60c per case. C. S. Watts, Monticello, Ills.

FOR SALE.—25 Alexander feeders at 25c each. E. G. Carr, New Egypt, N. J.

FOR SALE.—30 8-frame supers, full foundation, \$1.60 each. No disease. H. D. Hopkins, Otterville, Mo.

FOR SALE.—Novice extractor. Did not extract 100 lbs., \$16.00. A. H. Hattendorf, Ocheyedan, Iowa.

FOR SALE.—Two-frame Novice extractor, never used. Bargain. Graves & Hemmes, Great Barrington, Mass.

SEND TODAY for samples of latest Honey Labels. Liberty Pub. Co., Sta. D, Box 4E, Cleveland, Ohio.

BEEKEEPERS OF THE NORTHWEST! Order ROOT Supplies from George F. Webster, Sioux Falls, South Dakota.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

FOR SALE.—One Cone extractor No. 15, with brake; four 2,000-lb. tanks, all as good as new. Enquirers address at at New Paris, Ohio. V. H. Kirkpatrick.

SPECIAL SALE.—One-story 8-frame dovetailed hives, in flat, with telescope $\frac{3}{4}$ wood covers, in packages of five at \$10.00 per package. A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE.—200 10-frame empty hive bodies. Barnes saw, two 1,200-lb. tanks, one 2-frame and one 4-frame extractor for deep combs. Prices right. F. W. Lesser, East Syracuse, N. Y.

FOR SALE.—15 double-wall Root chaff hives, 240 Hoffman frames, wired, with combs complete. All in good condition. Will sell at bargain prices. Brookfield Poultry Farm, Versailles, O.

FOR SALE.—100 8-frame metal covers with inner covers, 75c each; 12 10-frame, the same, 90c each. All in good repair. Richard D. Barclay, Riverton, N. J.

FOR SALE.—Good second-hand empty comb-honey double-deck shipping cases for $4\frac{1}{4} \times 1\frac{1}{4}$ sections, good condition, at 25c each, f. o. b. Cincinnati. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines: GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—New standard hives, bottom-boards, covers, and frames, at 33 per cent off usual price. Write for particulars.

O. L. Rothwell, Gillett, Pa.

FOR SALE.—Comb foundation at prices that will save you money. Wax worked for cash or on shares. Send for price list.

E. S. Robinson, Mayville, N. Y.

FOR SALE.—If you wish to know where to save money on bee supplies send for our new price list. It may be worth your trying.

H. S. Duby & Sons, St. Anne, Ills.

FOR SALE.—Second-hand 60-lb. cans, two to the case, 50c per case f. o. b. New York. Also second-hand maple-syrup cans at 10c each.

Hoffman & Hauck, Inc., Richmond Hill, N. Y.

FOR SALE.—Two extractors, uncapping-cans, honey tanks, extracting outfit with supers, hives in flat. Bargain. Would take bees, queens, or honey. The Liberty Press, Box No. 224, Shanandoah, Ia.

FOR SALE.—Good second-hand 60-lb. honey cans, two to the case at 60c per case, f. o. b. Milwaukee. Terms cash with order.

E. R. Pahl & Co., 120 Huron St., Milwaukee, Wis.

FOR SALE.—Mr. Beekeeper of Alabama, Florida, Georgia, Louisiana, Mississippi, and Tennessee, send me a bill of your wants of bee supplies and let me make you good prices on the same.

M. Bates, Greenville, R. D. No. 4, Ala.

FOR SALE.—20 Danzenbaker hives, 40 Danz. supers, 18 telescope caps, one Hatch wax press, Root two-frame automatic extractor, all in fine condition, most of them painted. Will sell for half price. Also some light brood and light super foundation.

T. V. Huddle, West Jefferson, Ohio.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Bee-ware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the AUTOMOBILE DEALER AND REPAIRER; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline-engine repairs. \$1.50 per year. 15 cents per copy. Canadian subscriptions, \$1.50. Postals not answered. Charles D. Sherman, 107 Highland Court, Hartford, Conn.

POULTRY

FOR SALE.—Silver Spangled Hamburg eggs, and fine rare old Paganini violin.

Elias Fox, Union Center, Wis.

FOR SALE.—Silverlace Wyandotte eggs for hatching, \$2.00 for 15, postpaid.

Mrs. D. Potter, Ashtabula, R. D. No. 4, Ohio.

HATCHING EGGS.—Plymouth Rocks, all varieties; Anconas and Rouen ducks. Illustrated catalog, 3 cents. Sheridan Poultry Yards, R. D. No. 12, Sheridan, Mich.

S. C. Brown Leghorns, good baby chicks, \$15.00 per 100; \$7.75 per 50; \$4.00 per 25. Order from this advertisement. Safe arrival guaranteed. Circular free.

H. M. Moyer, Boyertown, Pa., R. F. D. No. 3.

REAL ESTATE

FOR SALE.—5-acre fruit farm, good buildings, located in county seat of Benzie Co. (Beulah, Mich.), ¼ mile from high school, church, depot and stores. Will take half its value in bees, 1,000 bu. of winter apples in one season from this farm. Ideal place for bees or poultry. Write

E. Mitchell, Castalia, Ohio.

WANTS AND EXCHANGE

WANTED.—Brood foundation mill.

W. A. Latshaw Co., Carlisle, Ind.

WANTED.—200 colonies of bees, more or less.

Ardell Packard, Alba, Pa.

WANTED.—Good 10-inch foundation mill, at reasonable price. Bert Smith, Woodhurst, Minn.

WANTED.—A second-hand 10-inch foundation mill.

T. F. Stone, Jacksboro, Tenn.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax.

Superior Honey Co., Ogden, Utah.

WANTED.—Used hives and supers, foundation mills, extractors, bees, and bee equipment. State lowest cash price wanted.

W. A. Latshaw Co., Carlisle, Ind.

WANTED.—To buy, between 300 and 500 colonies of bees. Locations must go with them. Give full particulars in first letter. Address

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P. O. Box No. 67, Rigby, Idaho.

WANTED.—100 colonies, more or less, of bees in 10-frame Langstroth hives in exchange for well-located land in Pennsylvania or Florida.

C. A. Brooks, Constance, Ky.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

WANTED.—To inform you that my address is changed from Fitzpatrick to Pike Road, Ala. The above change was made to enable me to be on "good roads" in order to serve my customers better. We have orders for all the package bees we can ship this season. My bees have same locations as heretofore.

W. D. Achord, Pike Road, Ala.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 38c cash, 40c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival.

The A. I. Root Co., Medina, Ohio.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1919 catalog. We will buy your share of the wax for cash or will work it into foundation for you.

Dadant & Sons, Hamilton, Illinois.

WANTED.—In Northern Ohio, Western Pennsylvania and extreme Southern Michigan, colonies Italian bees free from disease in 8- or 10-frame standard hives on Hoffman frames wired with combs drawn from full sheets worker foundation, in lots of 25 or more. State price asked in first letter. M. J. D., c/o Gleanings in Bee Culture, Medina, Ohio.

WANTED.—To inform you that my address is changed from Fitzpatrick to Pike Road, Ala. The above change was made to enable me to be on "good roads" in order to serve my customers better. We have orders for all the package bees we can ship this season. My bees have same locations as heretofore.

W. D. Achord, Pike Road, Ala.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 84 Courtland St., New York.

FOR SALE.—1919 Golden Italian queens, price list free. Write, E. E. Lawrence, Doniphan, Mo.

Queens on approval. Bees by package or colony. A. M. Applegate, Reynoldsville, Pa.

Golden Italian queens, untested \$1.00 each, six for \$5.00. E. A. Simmons, Greenville, Ala.

FOR SALE.—Strong, healthy colonies of bees. Tim O'Donnell, 815 So. Kildare Ave., Chicago, Ill.

Hardy Italian queens; one, \$1.00; 10, \$8.00. W. G. Lauver, Middletown, Pa.

PHELPS' GOLDEN QUEENS will please you. Mated, \$2.00. Try one and you will be convinced. C. W. Phelps & Son, Binghamton, N. Y.

THREE-BAND Italian queens only. Untested queens, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00. H. G. Dunn, The Willows, San Jose, Calif.

"She suits me" Italian queens, \$1.15 each from May 15th to Oct. 15th; 10 or more, \$1.00 each. Allen Latham, Norwichtown, Conn.

FOR SALE.—Indianola Apiary offers Italian bees and queens; tested, \$1.50; untested, \$1.00. J. W. Sherman, Valdosta, Ga.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, \$1.00; mated, \$2.00. C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Golden Italian queens ready April 15; \$1.00 each; \$10.00 per dozen. W. W. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—1-lb. package Italian bees, with queen, \$3.50; 2-lb. package, with queen, \$5.50. J. B. Marshall & Son, Big Bend, La.

FOR SALE.—Three-banded Italian queens, untested only, one, \$1.50; six, \$8.50; dozen, \$16.00. P. C. Chadwick, 725 E. High Ave., Redlands, Calif.

FOR SALE.—2 colonies of Italian bees, some bee supplies and books. T. H. Hansen, Janesville, Rt. No. 6, Wis.

FOR SALE.—3-band and Golden queens and nucleus. Queens, 1, \$1.50; 6, \$7.50. Allen R. Simmons, Claverack, N. Y.

FOR SALE.—Bright Italian queens at \$1.00 each, \$10.00 per doz. Ready April 10. Safe arrival guaranteed. T. J. Talley, R. D. No. 4, Greenville, Ala.

Leather-colored Italian queens, tested, to June 1st, \$2.00, after, \$1.50; untested \$1.00, \$10.00 per dozen. A. W. Yates, 15 Chapman St., Hartford, Conn.

FOR SALE.—Three-band Italian queens ready June 1. Untested, each, \$1.00; 12, \$10.00; 100, \$80.00. Satisfaction and safe arrival guaranteed. A. E. Crandall & Sons, Berlin, Conn.

FOR SALE.—Three strong hives Italian bees including supers, also 4-frame extractor. Willing to take some chickens in part payment. Bamman, West Englewood, N. J.

FOR SALE.—Business-first queens. Laying untested queens, \$1.00 each; select untested, \$1.25; tested queens, \$2.00; select tested, \$2.50. Price list for asking. M. F. Perry, Bradentown, Fla.

GOLDENS THAT ARE TRUE TO NAME. Untested queens, each, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00. Garden City Apiaries, San Jose, Calif.

FOR SALE.—Golden Italian queens of an improved strain; the bee for honey, hardiness, gentleness, and beauty. Untested, \$1.00; tested, \$2.00. Wallace K. Beaver, Lincoln, Ill.

FOR SALE.—Good Italian queens, tested, \$1.50; untested, \$1.00; 1-lb. package, \$3.00; 2-lbs., \$5.00; nuclei, 2-frame, \$4.00; 3-frame, \$5.50. G. W. Moon, 1904 Park Ave., Little Rock, Ark.

BEES FOR SALE.—Pure Italians of Dr. C. C. Miller's strain in standard ten-frame Langstroth hives. Write for price and particulars. D. E. McDonald, Rutland, B. C., Can.

FOR SALE.—50 colonies Italian bees in 8-frame hives. Combs drawn from full sheets of foundation. Also 50 3-frame nuclei first of June or last of May. Write for prices. E. L. Lane, Trumansburg, N. Y.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$2.00, 6 for \$7.50. Wm. S. Barnett, Barnetts, Va.

FOR SALE.—Golden Italian queens which produce gentle yellow bees, the hardest workers we have known, \$2.50 each. When you wish to improve your stock always buy the very best. Wildflower Apiaries, Trust Bldg., Little Rock, Ark.

Three-banded Italian queens and bees by the pound, also nucleus, in Roof's shipping-cases, if preferred, or buyer furnish own cages. Send for price list. J. A. Jones & Son, Montgomery, Ala., R. D. No. 1, Box 11a.

FOR SALE.—Italian queens, golden, and three-banded, bred from best selected stock. Untested, each, \$1.00; 6, \$5.00; 12, \$10.00; select untested, \$1.50 each. Satisfaction guaranteed. G. H. Merrill, Liberty, S. C.

FOR SALE.—3-band Italian queens from best honey-gathering strains obtainable. Untested queens, \$1.25 each; 6, \$6.50; 12, \$11. Satisfaction guaranteed. W. T. Perdue, Fort Deposit, R. D. No. 1, Ala.

FOR SALE.—150 colonies in Iowa, mostly Italians. One four- and two two-frame extractors, storage tanks, empty hives and supplies in good shape. One lot or part. No disease. Reason for sale, leaving the State. F. Eric Millen, State Apiarist, Ames, Iowa.

FOR SALE.—Golden Italian queens in May, select tested, \$1.50; tested, \$1.25; untested, 85c; 6 for \$4.75; 12 for \$9.00; select tested, \$1.00; 6 for \$5.50; 12 for \$10.00. No foul brood. No bees for sale. D. T. Gaster, Randleman, R. D. No. 2, N. C.

BEES AND QUEENS. When you can't get them from others you can from us. 1-lb. pkg. bees, \$2.00; 2 lbs., \$3.75; queens, \$1.00 each, \$11.00 per doz. Good stock. No disease. Order quick. Special prices on nuclei. Pelican Apiary, New Orleans, La.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, \$1.25; 12 queens, \$14.00. One pound of bees with queen, postpaid, \$6.00. Safe arrival and satisfaction guaranteed. M. Bates, Greenville, R. D. No. 4, Ala.

FOR SALE.—A limited number of bees and queens for May delivery from either home apiaries or South Carolina. Safe delivery guaranteed if shipped by express. Parcel post shipments at buyer's risk. We invite correspondence as to details and price. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Three-banded Dr. Miller and Walker Italian queens, ready in May, untested, \$1.25 each; 6 for \$7.00; 12 for \$12.00; select, \$1.50 each; 6 for \$8.00; 12 for \$15.00; tested, 2.50; select tested, 3.50 each. Orders filled in rotation. Queen circular and testimonials sent free. Curd Walker, Queen-breeder, Jellico, Tenn.

FOR SALE.—Full colonies in new standard eight-frame hives, each with tested Italian queen, full sheet wired combs, hustlers, easy to handle; no disease here. J. Ford Sempers, Aikin, Md.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey gatherers as can be found; May and June, untested, each, \$2.00; six, \$7.50; doz., \$14.00; tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnetts, Va.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are **GREAT HONEY-GATHERERS, BEAUTIFUL and GEN- TLE.** Virgins, 1.00; mated, \$2.00.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—5 box hives hybrid Lees in May, \$5.00 each. Four-frame nuclei Italian bees, \$5.00 each. Mann Green Bone Cutter, hand and power, good as new, \$15.00. Present catalog price, \$25.00.
B. F. Averill, Howardsville, Va.

MOTT'S NORTHERN-BRED Italian Queens are hardy, prolific, gentle, and hustlers, therefore resist disease well. Untested, \$1.00 each; \$10.00 for 12; selected tested, \$2.00 each. Virgins, 50c each. Plans "How to Introduce Queens" and "Increase," 25c. Also Golden Campine eggs, best of laying birds.
E. E. Mott, Glenwood, Mich.

FOR SALE.—25 colonies Italian bees in new 10-frame L. hives, Danzenbaker reversible bottoms, and metal-covered tops. Frames wired with full sheets of foundation. All strong colonies. 15 colonies, \$200; one or more, \$10.00 each. Also supers and drawn combs.
Emil Tappert, 919 N. Main St., Jacksonville, Ills.

FOR SALE.—North Carolina-bred Italian queens of Dr. C. C. Miller's strain of three-band Italian bees. Gentle and good honey-gatherers. May 1st until July 1st, untested, \$1.25 each, \$12.00 per doz.; tested, \$1.75 each, \$18.00 per doz.; select tested, \$2.25 each. Safe arrival and satisfaction guaranteed. L. Parker, Benson, R. D. No. 2, N. C.

HOLLOPETER'S Italian queens ready in June, untested, one \$1.75; six, \$9.00; July, one, \$1.50; dozen, \$15.00. Quantity price on application, delivery after July 10. These prices guarantee you safe arrival of really high-grade Italian stock, more efficient service and wings clipped when desired.
J. B. Hollopeter, Rockton, Pa.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.
H. G. Quirin, Bellevue, Ohio.

Queens from one of Dr. Miller's breeders. Tested, \$1.75 each; \$18.00 per doz.; untested, \$1.25 each; \$13.00 per doz. 1-frame nucleus, \$3.00 each; 2-frame, \$5.00 each; 3-frame, \$6.50 each, without queens. We have never had any disease here. Safe arrival and satisfaction guaranteed. We have no package bees to offer and no untested queens except with nuclei. Delivery April 15. Geo. A. Hummer & Sons, Prairie Point, Miss.

BEEES FOR SALE.—Bees in one-story standard hives, \$10.00 each up. Average grade bees in various parts of Pennsylvania for shipment direct to purchaser. There is no guarantee either expressed or implied as to the purity of these bees, or their condition, but they are guaranteed by the former owner to be free from foul brood. Engage them now.
John N. Prothero, DuBois, Pa.

HELP WANTED

WANTED.—Good experienced man; also some good helpers. Good chance for willing workers.
Penn Co., Penn, Miss.

HELP WANTED.—One or more men to work with bees the coming season. State, age, experience, and wages, we to furnish board. The Rocky Mountain Bee Company, Billings, Mont.

WANTED.—Experienced beeman and one helper. Fast workers and able to do heavy work. Prefer young men experienced in handling auto trucks. State all particulars in answering and wages wanted.
Ernest W. Fox, Fruitdale, S. D.

WANTED.—One experienced man, and students as helpers in our large bee business. Good chance to learn. Modern equipment and outfit, including auto truck, located near summer resorts. Write, giving age, height, weight, experience, reference, and wages wanted.
W. A. Latshaw Co., Clarion, Mich.

SITUATIONS WANTED

WANTED.—Experienced beekeeper wants employment in an apiary in U. S. or Canada. Send letter, no telegram.
Morris F. Laughlin, Albin, Wyo.

WANTED.—Young man landing in San Francisco about the middle of April, with fair experience, wants work on bee farm to gain experience in American methods. Character and habits O. K. Write.
Asken, c o Thos. Cook & Son, San Francisco, Cal.

MISCELLANEOUS.

Highest prices paid for old used postage and revenue stamps. A. Arnold, 1482 Broadway, New York.

FOR SALE.—Early tomato plants, 100 by mail, 40c.
J. F. Michael, Winchester, Ind.

Get my free book on Belgian Hares and big New Zealand Red Rabbits.
J. E. Johnson, Marionville, Mo.

PRINTING.—Send your copy for estimate. Work guaranteed. Circulars, Bill Heads, Letter Heads, etc. The Hawthorne Press, R. W. Hopkins, Mgr., Yonkers, N. Y.

Complete typewritten (mimeographed) report of lectures by Dr. Phillips and Mr. Demuth of U. S. Dept. of Agriculture at California Short Courses and Cornell Univ., questions, answers, etc. Beekeeping principles practically applied to Eastern and California conditions. 55,000 words of **STRAIGHT TALKS** on bees and beekeeping, nearly equal to 200-page book. See February Gleanings. \$1.75. R. B. Calkins, 5800 Hearn St., Oakland, Cal.

E. D. Townsend, the present owner of the *Domestic Beekeeper* bought beekeepers' supplies for the National Beekeepers' Association for several years. He is now buying for the subscribers of the *Domestic Beekeeper* at the same low manufacturers' price. Listen now what he has got up his sleeve: Any GLEANINGS subscriber buying five dollars' worth of supplies thru the *Domestic Beekeeper* at catalog price, and sending along an extra dollar to pay for a year's subscription to the *Domestic Beekeeper*, will get in return a rebate check for a dollar, leaving, the year's subscription to the *Domestic Beekeeper* absolutely free to you. Of course, if your order for supplies is larger than five dollars, you will get a correspondingly larger rebate check on your order. One of our subscribers got a rebate check of \$40.00 on his order of supplies last month, March. It was just like getting money from home to him, as he sent us the same money he would have had to pay if he had bought thru the regular dealer in beekeepers' supplies. More and more, close buyers of beekeepers' supplies are investigating the buying facilities of the *Domestic Beekeeper*. A word to the wise should be sufficient to cause you to send your next order for beekeepers' supplies to the Domestic Beekeeper, Northstar, Michigan.

LAST CHANCE

ALL FOR 2 DIMES—To Introduce I will send Selected Seed for 10 Big Hills Genuine Early Six Weeks Potatoes, earliest, hardest, best keepers on earth—delicious quality; so early you can grow two full crops a year even in the north (I send full directions); amazingly productive.

Growers Report

“650 bushels per acre.”
“A full bushel from every six hills.” “52 big potatoes in one hill.” “12 bushels from a dollar order.” Etc., etc.

Also 20 Hills New Profitic Tree Beans—enormous and sure yielders



Tree Beans and 70 Hills \$1.00. Seeds and 250 Hills Potatoes \$3.00.



everywhere of extra early, pure white luscious beans; 10 varieties best Butter and Head Lettuce—1700 seeds; 30 Hills red, blue, white, rice and gold Pop corn—for children and chickens; 10 beautiful fragrant Tree Ferns, and big 25c. Flower Collection—for wife and children. ALL safely boxed and postpaid for TWO DIMES or 24c. in stamps. All seeds and 30 Hills Potatoes 50c. Seeds

I Give 50 Beautiful Watches Free to 50 customers growing most Potatoes from 100 hills.

A. G. Cook, Potato Specialist
Hyde Park on Hudson, N. Y.

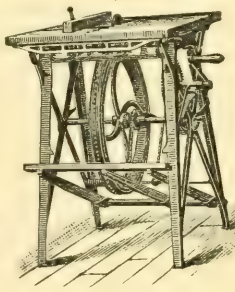
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
545 Ruby St
ROCKFORD, ILLINOIS



IRON AGE

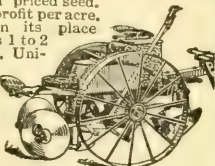
Farm, Garden and Orchard Tools
Answer the farmers' big questions, How can I grow crops with less expense? How can I save in planting potatoes? How make high priced seed go farthest? The

IRON AGE Potato Planter

solves the labor problem and makes the best use of high priced seed, Means \$5 to \$50 extra profit per acre, Every seed piece in its place and only one. Saves 1 to 2 bushels seed per acre, Uniform depth; even spacing. We make a full line of potato machinery. Send for booklet today.

No Misses
No Doubles

Bateman Mfg Co., Box 20B, Grenloch, N. J.



Our Food Page—Continued from page 304.

ey and the seasonings and cook until smooth. Pour the sauce over the beets, which have been cut in dice and heat thru. —Adapted from recipe by Fannie Merritt Farmer.

BUTTERSCOTCH PIE.

½ cup water	¼ teaspoon salt
4 tablespoons flour	2 tablespoons pulverized sugar
3 tablespoons butter	1 teaspoon vanilla
1 cup milk	1 baked crust
2 eggs	

Put the brown sugar and water over the fire until the sugar is dissolved, add to the milk, thicken with the flour and butter rubbed together, and then add the beaten egg yolks, the salt and cook until smooth. Pour into the crust, cover with a meringue made of the egg whites well beaten and combined with the pulverized sugar and put into the oven until lightly browned.

FRUIT DUMPLINGS.

3 cups canned fruit	milk
1 cup flour	½ teaspoon salt
2 teaspoons baking powder	1 tablespoon butter honey

Put the fruit on to heat in a rather wide stew pan which has a close-fitting cover. Sift the baking powder and salt in the flour, add enough milk to make a stiff drop batter and drop from a teaspoon over the boiling hot fruit, cover and cook about 12 minutes. Serve the dumplings with the fruit for a sauce, having first added the butter to the fruit and sweetened it to taste with honey.

This is a good emergency dessert as it may be prepared in a very few minutes from materials at hand in nearly every pantry.

STEAMED DATE PUDDING.

3 tablespoons melted butter substitute	¾ teaspoon soda
½ cup honey	1 teaspoon cinnamon
½ cup thick sour milk	½ teaspoon cloves
about 1½ cups flour	½ teaspoon salt
	1 cup chopped dates or figs.

Combine the melted butter substitute and the honey. Sift the flour and the other dry ingredients together, and add the sour milk and the flour a little at a time, alternately, until all has been used. The batter should be as stiff as cake batter. Stir in the fruit, steam two hours, and serve with pineapple hard sauce.

PINEAPPLE HARD SAUCE FOR STEAMED PUDDING.

1 cup pulverized sugar	2 or 3 tablespoons pineapple juice drained from canned pineapple.
1/3 cup butter or butter substitute	

Cream the butter or substitute and the pulverized sugar thoroughly together and gradually beat in the pineapple juice a few drops at a time. Put in a cool place to become firm.

We Are
General Agents in Michigan
for The A. I. Root Company

This Means That

- From us you get bee supplies
of the highest quality.
- Our prices are identical with
theirs.
- You get immediate shipping serv-
ice from the center of Michigan.
- We pay you Root prices for
Beeswax at Lansing.
- The Root aim is our aim, that
of serving the interests of Mich-
igan beekeepers in the best pos-
sible manner.
- We want to send you a copy of
our 1919 catalog. A copy of the
“Suburban Beekeeper’s Outfit”
for the asking.

M. H. HUNT & SON

510 NORTH CEDAR ST.
LANSING, MICH.

Administrator's Sale

W. D. Soper's entire stock of bee supplies.
All hives 20 per cent off list.
All No. 2 sections 15 per cent off.
Write for list.

H. L. Soper, Admr., Rt. 4, Jackson, Mich.

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1919 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

BE CAREFUL In selecting your Foundation stock of any Breed

Rufus Red Belgian Hares

Only Pedigreed Registered Stock. Prices Reasonable

JOSEPH BLANK

428 Highland Ave. Mount Vernon, New York

WRITE GALLOWAY

TODAY OF WATERLOO

For new 1919 Book. Save \$25 to \$200 on Gasoline Engines, Manure Spreaders, Cream Separators and other Implements. Sold direct from factory. Our 300,000 satisfied customers prove merit of goods and direct selling system. Close shipping points. Mention implement interested in. Write today.
Wm. Galloway Co., Box 767 Waterloo, Iowa.



"Best" Hand Lantern

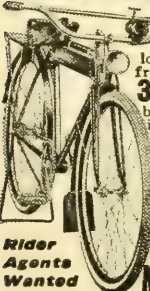


A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog.

THE BEST LIGHT CO.

306 E. 5th St., Canton, O.

Delivered TO you FREE



Your choice of 44 styles, colors and sizes in the famous line of "RANGER" bicycles, shown in full color in the big new Free Catalog. We pay all the freight charges from Chicago to your town.

30 Days Free Trial allowed on the bicycle you select, actual riding test in your own town for a full month. Do not buy until you get our great new trial offer and low Factory-Direct-To-Rider terms and prices.

TIRES LAMPS, HORNS, pedals, single wheels and repair parts for all makes of bicycles at half usual prices. No one else can offer such values and such terms.

SEND NO MONEY but write today for the big new Catalog. It's free.
MEAD CYCLE COMPANY
Dept. C153, Chicago

Rider Agents Wanted

AROUND THE OFFICE

M-A-O.

Will Logge up in Wisconsin is being persecuted the meanest by Gleanings as I see it. At least, he's being shut off of publicity. The other day he sent in an advertisement as follows to wit: "Wanted—a young lady or widow partner not over 36 years who has been, or is, interested in beekeeping, with some means, to produce honey on an extensive scale. Object matrimony." Gleanings wouldn't print it for Will Logge saying as how they wanted Will to understand they wanted no matrimony bureau, and also doubtin' as to whether his object wanted more for the some means than for producing honey or tynin' himself up into matrimony notes. He says address him at 2029 Brown Street, Milwaukee. But afore any innocent girl not over 36 years old or any trustin' and lonely widow under same age limits does address him I've got somethin' to say to both of em, and also to him afore he gets his foot in so far in answerin' he can't pull it out no way as how perhaps he'll want to the almighty. This matrimony business is a serious thing approachin' it either from the female or male side. It aint no joke by a long sight so it aint. Now lets see about Logge's proposishun. Why's he drawin' the line at 36 anyway, on both widows and young girls not over 36? Is it fair to a girl as what is from 37 to 41 or 42? Nothin' but young chickens for Will Logge I guess, and it would make me suspicious of him if I hadn't had more than 36 years experience. Once again, girls and widows under 36 years old, take notice how he sort a drags his bait along the bottom and right at the end and sharpest and dangerous part of the hook he put on object matrimony. He even put this after mentionin' a little detail about some means being required. That was a point to be noticed some too. I don't know how a hook baited up that way will get 36-year-old-and-under girls and widows playin' round it, but I know I couldn't get no legal size bass of compis mentus on no such baited hook as that is. But after these passin' observashuns of mine, if any widow or girl not over 36 years of standard length, still young, who is interested in beekeeping past or present, with some coin, wantin' to produce honey and honeymoon and willin' to have Logge have matrimony as a object too, wants to address him at Milwaukee, jest crack ahead. I aint got no further responsibility in the matter whatsoever so I haint. I feel I've put the case up to the girls and widows fair and I aint shut Will Logge entirely out of Gleanings columns contrary to all principles of a free press and inalienable rights guaranteed by the constitution. Oh, I was ago in to say somethin' to Will too. I want to be fair, and I know somethin' about matrimony I could tell him. There's a awful lot about matrimony that could be said and said over several times and then said some more too. I don't want Will as a fel-

ler male to get the worst end of any matrimony he may contract onto hisself, so I am tellin him now in advance he may get to correspondin so much with some of those 36-year-old little innocents that they wont let him go short of about ten thousand dollars, so they wont. There is worse things to be holdin tight holt on than a red-hot kitchen range, Will, and a No. 1 bear trap don't hold no faster onto a yearlin cub than a 36-year-old female of our species sometimes holds onto a object of matrimony. Before you get to frolickin too much with 36-year-olds out on the matrimony promenade, Will, I wanted to slip you the aforesaid informashun. Now, then, just as I said to the girls and widows above, after considerin all I have said to you, crack ahead if you want to. I don't feel no further responsibility. Praps I had orter say too, Will, if you love fishin and aint strong on gardenin and are given to yieldin to temptashun, there aint no worse thing on earth than matrimony to get into. For you mix matrimony and fishin and beekeepin and gardenin and lawn mowin and a increasin family and some poverty and combine with these leadin factors in a continuoosly stirrin life a disposishun to yield to temptation on nice days when fish'll bite, and you'll find you'll get to tryin to lie out of it to your wife and then your self-respectin manhood will get to oozin out of you and you will get to erabbin and you never'll be happy again atall only jest the little time you can sneak off to the creek alone and that ends allays at sundown—and then you gotta go home and face it again. I tell you, Will, if you love fishin forever shun matrimony as a object. Don't ever again, if you are a true fisherman, think of advertisin it as a object at least. It aint no object whatsoever to a fisherman, so it aint. But now havin said so much, and havin let you into my department when they shut you out of classified ads, I say again, crack ahead if you want to. I feel I done my duty.

* * *

E. E. Mott of Glenwood, Mich., wrote to a beekeeper friend as follers: "The real bee men are nice fellows," and he goes on to say as how some stranger at a beekeepers' convention at Grand Rapids, Mich., stepped up to him and said beekeepers' conventions was the only ones where he never saw discord come up—nothin more than keen interest. Oh! bi sulphide, where's Mott been to a beekeepers' convention anyhow? Has he ever attended one in Wisconsin or the Western New Yorkers' association? If he aint he better not. When they all get to talkin at oncet includin the deliberative presidin officer it may not jest be discord exactly but it's a time when everybody present is keen interested of course and knows he or she is exactly right and nobody else is and he or she is sayin so emphatic. If the same sort o thing happened at my house I wouldnt probably say it was discord

(Continued on page 340.)

WANTED

Collectors of Flowers

The undersigned desires the services of collectors of the flowers of honey plants in the Southern and Western States, either boys, girls, men or women. The desire is to obtain fresh flowers from the above States to be photographed natural size. They should be packed and shipped as follows:

Select flowers which have recently opened or are still in bud. Wrap the ends of the stems in damp cotton or moss and tie firmly in place. Pack in wooden boxes, lined with waxed paper (pasteboard boxes will break). Fill in the empty space with cotton or other soft material to prevent the flowers shaking about and being spoiled. Wrap the box in paper and mail by parcel post, insured.

I will pay postage, cost of packing material and also a fair price for collecting. Write at once for further particulars. The flowers of any rare honey plant especially desired.

Mail no flowers without writing me first.

John H. Lovell, Waldoboro, Me.

I Have about 300 Two and Three Pound Packages of Bees for Sale with Untested Italian Queens

I ship bees on one comb of brood and honey. My eight years' experience has proved to me that this is the most satisfactory way of shipping live bees.

Two-pound package with queen.....\$5.00

Three-pound package with queen.... 6.00

The above is for May delivery.

Queens, per doz., \$10.00; per 100 or more, \$85.00. The above are three-handed stock only. For Canadian orders add \$1.00 per package. Absolutely free from disease. Safe delivery and satisfaction guaranteed.

OSCAR MAYEUX, Bx. 15, Hamburg, La.

BEES We furnish full colonies of Italian bees in double-walled hives, single-walled hives, and shipping boxes; 3-frame nucleus colonies, and bees by the pound. Tested Italian queen, \$2.00; untested, \$1.50.

I. J. STRINGHAM, GLEN COVE, N. Y.

Distributors Root's Goods FOR PENNSYLVANIA

Send for new special catalog featuring the "Simplex" Super, and giving instructions to beginners

Prothero, Bailey & Goodwin DUBOIS PA.

\$30.000 WORTH OF **Bee Supplies**



All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

Will Take Beeswax in Trade at Highest Market Price.

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

BEE - SUPPLIES

FALCON LINE

We carry the largest supply in our section. Send us your inquiries.

Lowest Prices, Quality Considered

C. C. Clemons Bee Supply Co.
128 Grand Ave. KANSAS CITY, MO.



It will pay you to get our catalog and order early.

Beekeepers' Supplies

The Kind You Want and The Kind That Bees Need.

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

REWARD

GOOD TILL MAY 20TH



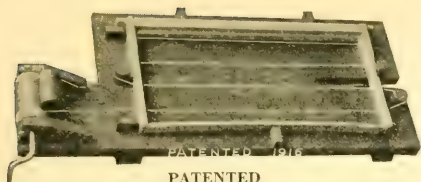
**THE KRETCHMER
MAN'FACTOR'G CO.**

Department G
COUNCIL BLUFFS, IOWA

FIND THE MISTAKE IN OUR NEW CATALOG No. 114

Look thru that catalog right now (if you haven't a copy ask us for one), when you find the mistake write us about it, make out your order for supplies and keep 2 per cent of the amount of the bill as Your Reward.

The time is limited. Hunt up that mistake now, while you're thinking about it.



PATENTED 1916

PATENTED

Wright's Frame-Wiring Device

Most rapid in use. Saves cost of machine in one day. Tighter wires; no kinks; no sore hands.

G. B. Lewis Company, Watertown, Wisconsin

IRON AGE

GARDEN TOOLS

Answer the "war gardener's" big question: How can I produce the most food in spare moments? How meet increased costs and war taxes?

IRON AGE Wheel Plow and Cultivator

19-C

Easy to push, fast, thorough, low in cost. Opens and covers furrow for seed and fertilizer. Cultivates wide or narrow rows. Turns soil and covers scratch foods in poultry yards. 30 other Iron Age Combinations. Send for free booklet today, and learn how to garden the modern, easy way.

Bateman M'f'g Co., Box 20-S, Grenloch, N. J.

?

PATENTS Practice in Patent Office and Courts
 Patent Counsel of The A. I. Root Co.
 Chas. J. Williamson, McLachlan Building,
 WASHINGTON, D. C.

"Special Crops" A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. \$1.00 per year. Sample copy 10c. Address
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GET YOUR CHURN FREE



17,000 Leader Churns, in use all over the country, have removed the dread of churning day by saving time and labor. They make more and better butter; 5000 unsolicited testimonials. A. N. Hollis, Lawrenceburg, Tenn. says: "Churning was a burden until we got the Leader. Now the children c y to churn. We can churn in 3 or 4 minutes." Special dash—steel frame—light weight—easily cleaned.

Lasts a Lifetime

Sold under two plans. Simply order a trial churn now, without sending any money; then, when satisfied at end of thirty days, remit the price shown below, or take orders from your friends and let your commissions pay for your churn, thus securing your Leader Churn Free.

☐ 3 Gal. \$5.00 ☐ 5 Gal. \$5.50 ☐ 8 Gal. \$6.00
 Churns 11-12 Gallons Churns 3 Gallons Churns 4 Gallons

Send No Money Order direct from this Adv. checking size of Churn wanted. You pay express charge only. Nursery agents or farmer agents take trial orders. We deliver and collect; no money needed.

Novelty Mfg. Co., Box 722 Abingdon, Ill.

CHURNS IN 3 MINUTES

IF GOODS ARE WANTED QUICKLY SEND TO ST. LOUIS

Indications just now are very favorable for a good season; but we are, of course, at the mercy of weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

WE CARRY ROOT'S GOODS

and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house. If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods. Promptness in filling orders is the motto here. We also give small orders the same careful attention that is given to large orders. Let us have the pleasure of mailing you our free catalog.

BLANKE SUPPLY & MFG. COMPANY

ST. LOUIS, MO.

Around the Office—Continued from p. 337.

for I couldn't get a word in edge wise but I would keep thinkin it sounded somethin like discord and come over to the office here to oncet to get away from it. But probably it aint the same in a beekeepers' convention. It is jest keen interest there. It's the same thing as when Mel Pritchard and Iony Fowls and Ernie Root get keen interested in some beekeepin topic in Gleanings office. It stops work out in the business office for people as has to work with figgers like to be able to hear themselves think at times. But I guess Mott and his friend are right about it praps, and there is only high tenshun accord and keen interest in a beekeepers' convention. Anyhow, when I hear the old cat a screamin and meawoin and a spittin and a howlin and a whoopin it up Willyum Riley over at my house next time just cause the old coon dog has got holt of her dorsal porshuns and is chewin considerable there, I aint goin to worry about its bein discord so I aint. It aint discord atall. Its only a case where they are both interested the almightiest in contemporanus events, and I am jest goin to think of the interest at beekeepers' conventions and go on diggin angle worms and try to get down to the creek afore somebody with considerable infloouence at my place appears at the backdoor and says the lawn needs mowin again when you've got the potatoes hoed.

* * *

H. B. Bartlett-Miller of Kihikihi, Waikato, N. Z., writes me he's a big beekeeper and New Zealand has the best trout fishin in the world as trout average about 8 lbs. in season. That aint kind, Mr. Miller, specially if you aint drawin a long bow on N. Z. trout sizes. Its gettin nice bass weather here now and my garden aint planted and I dont need to be reminded anythin about fishin for my peace of mind. You neednt send any more fishin news so you neednt unless you see that it gets here about mid-winter or sometime when my lovin wife is absent from home or when my garden is all made and hoed fine. I have enough temptashun in Rocky Creek right near home to rassle with this time of year allays without havin 8-lb. trout in New Zealand thrown up to me. Bi sulphide tho I wish I was helpin Mr. Miller in his apiary this comin trout season.

* * *

As the squash bug season is a loomin on the garden horizen again I guess I better let Robt. Elwell of Rumford, R. I., into my dept. to say the follerin: "Tell Steve T. Byington that Massachusetts isn't free of bugs, yet I alternately dusted with wood ashes and sprayed with pyrox all last summer and still had squash bugs left. They were thicker than hair on a dog (haven't counted fleas)." Let me tell you, Mr. Elwell, you aint got nothin in the way of pisen or other destroyin substances that you can

pile onto a squash bug that wont make him grow prosperous and feel better. I've got down to "Uncle Amos's" system of hand pickin em. It works tho it does bring on backache and language.

* * *

That man L. L. Andrews out at Corona, Calif., one of the biggest beekeepers anywhere, is attractin my affeshun for he seems to be a feller traveler to the grave as what has human feelins and has a heart. He writes me to the follerin effect: "Why is it that when a fellow just gets so much NECESSARY bee work that he don't know

TRADE NOTES

CHANGE OF LOCATION OF THE A. I. ROOT CO.'S
BRANCH OFFICE AT CHICAGO.

The Chicago branch of The A. I. Root Co., on May 1, will be removed from its present location at 215 W. Ohio St., to the 7th floor of the new Bauer Building at 224-230 W. Huron St., 4 blocks north of present location. This new location can be reached over the same surface lines or by way of the Northwestern Elevated, getting off at Chicago Ave. Station and walking 2 blocks south.

I. F. Miller's Strain Italian Queen

BEES FOR SALE. Now booking orders for prompt delivery. By return mail after June 15th or your money back. Northern bred, for business, from my best SUPERIOR BREEDERS; gentle, roll honey in, hardy, winter well, not inclined to swarm, leather-colored or three-banded. Queens a specialty; twenty-five years breeding experience. Safe arrival and satisfaction guaranteed. Untested, \$1.00; 6, \$5.50; 12, \$10.00. Select unttested, \$1.25; 6, \$6.75; 12, \$12.00.

I. F. MILLER, Rt 2, Brookville, Pennsylvania

Complete Line of Beekeepers' Supplies

Catalog on Request

F. Coombs & Sons, Brattleboro, Vt.

GOLDEN QUEENS.....

After April 1: Untested, \$1.25 each, 6 for \$7.00, or \$13.00 per dozen, or 50 for \$48; also 3-band unttested at same price; tested, \$3.00 each, and my very best at \$5.00 each. Satisfaction.

R. O. Cox, Rt. 4, Greenville, Alabama



The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

which way to turn, the weather is just ideal and his longings are just riveted on that trout stream where those big fellows are just biting 'scandalous'? Seems nothing but a few days 'neath cooling shade beside rushing water' will again put him in normal condition to properly care for the bees." The only difference between me and Andrews as beekeepers is that he keeps his longins riveted on the creek while I unrivet em and get down onto the creek myself, bees or no bees, swarms or no swarms. I get more fish that way than by keepin my longins tight riveted. I aint much for keepin fishin longins riveted.

* * *

Thanks to whoever that feller was down in Greenwich, Conn., who sent me all them tracts on "Hell." They're jest what I need at this fishin and gardenin time of year. The more I get scared into doin as what I order do in May and June the better for me. Its a tryin time to a fisherman-beekeeper and a time when his new years resolutions has generally got pretty wobbly. Some regeneratin beekeeper down near Northampton in Mass. might send me a few of Preacher Jonathan Edwards' pulpit picthers of the hereafter as what you dont want. They say there aint no better for morally bracin totterin human natur. If anybody else has any literatooor about the present or more especially the hereafter as will keep a fisherman beekeeper tendin his bees in May and June when he order, send it on. It'll be better for my garden too.

* * *

I sometimes get a opportunity to snoop around in Gleanins waste basket when Wilyum brings it out of the editorial den to dump it in the big waste paper catchall. These investigations of mine has led me to believe they don't print all what is sent em. For instance, Edw. McCoy up at Riverdale, Mich., wrote em somethin as they did n't seem to value sufficient to print. Here is jest exactly what it was: "My time for Gleanings has expired this month, so I will say stop it. They have been trying to make it better and spoiled it to my notion. Been

nothing much but wintering and feeding all the fall in it. I don't have to feed and have wintered for a long while, so don't have to read about it every month, and the writers have chewed the rag so long they ought to be handed a fresh one so as to have something fresh to chew on. Stop it now." I pulled that jule of feelin frankness out of the waste basket, so I did, and give it to the waitin public. It order do the editors some good. I hope McCoy will write some more. But I bet the Gleanins waste basket will be used more careful in the future.

Classified Advertisements Received Late.

FOR SALE.—Three-banded leather-colored Italians, of the celebrated Moore strain with tested queens, reared last season, in eight-frame Langstroth hives, at \$12.00 a colony.

John Hutchinson, Lake City, R. D. No. 2, Mich.

One of the best queen breeders in the United States is now raising queens for us from selected leather-colored Italians. We offer warranted queens at \$1 each or \$90 per hundred. Tested queens, \$2 each. Satisfaction and safe delivery guaranteed. Queens ready May 25. Order now as our supply is limited.

The Foster Honey & Mercantile Co., Boulder, Colo.

FOR SALE.—3000 cases, practically new 5-gallon cans, used once, at 50c a case.

Walter C. Morris, 105 Hudson St., New York.

FOR SALE.—150 section cases nailed up with glass front holding 20 4x5 sections each, at 20c each; 40 ten-frame Dovetailed full-depth bodies with full drawn combs built on full sheets foundation, wired Hoffman frames at \$2.00 each.

Hyde Bee Co., Floresville, Tex.

FOR SALE.—Leather-colored untested Italian queens, June and July, \$1.00 each, 6 for \$5.00.

J. M. Cutts, Montgomery, R. D. No. 1, Ala.

MASON BEE SUPPLY COMPANY

MECHANIC FALLS, MAINE

From 1897 to 1918 the Northeastern
Branch of The A. I. Root Company

**Prompt and
Efficient
Service**

BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway.

If you have not received 1919 catalog, send name at once.

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BY MAIL
AT 4%**

DISTANCE is no hindrance to saving money
BY MAIL with this large safe bank, at 4
per cent compound interest.

No matter where you live, send today for a
copy of our interesting booklet "Banking by
Mail."

THE SAVINGS DEPOSIT BANK CO.

A.T. SPITZER, Pres.
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MEDINA, OHIO

IRON AGE

GARDEN TOOLS

Answer the farmer's big questions:
How can I have a good garden with
least expense? How can the wife
have plenty of fresh vegetables for
the home table with least labor?

**This Hill or Drill Seeder
and Wheel Hoe Combined**

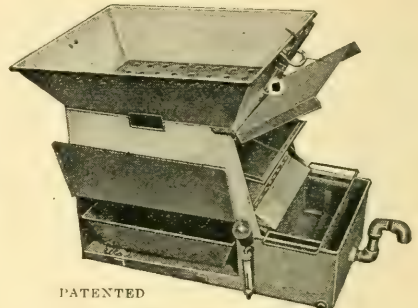
solves the garden labor problem. Takes the place
of many tools—stored in small space.
Sows, covers, cultivates, weeds,
ridges, etc., better than old-time
tools. A woman, boy or girl
can push it and do a day's
hand-work in 60 minutes.
Many combinations
and prices.
Write for
free booklet
today.

306
Drill
and
Wheel
Hoe



Bateman Mfg. Co., Box 20C, Grenloch, N. J.

THE SEVERIN Melter and Separator COMBINED



PATENTED

Address all communications to

F. J. Severin, Box 145, Imperial, Cal.

MR. BEEKEEPER! DO YOU REALIZE The Busy Season Is At Hand

with prospects the best they have been in a long time? (Bees are strong and clover is making rapid progress.)

Also in concluding your plans have you considered those customers who will buy and eat your comb honey that will not touch your extracted honey at any price? Remember the successful manufacturer or producer turns out what the consumers want! Not what he likes to produce. Remember the Demands of the Market!

Transportation is slow and uncertain. However, we have a complete and liberal stock of Lewis Beeware (made like furniture) and Dadant's Foundation (the leading foundation manufacturers of the world). And the superior goods at as low a price as sound business will warrant—not a price based on cheap shoddy goods that can never please you any more than the second-hand furniture or an old, worn-out car or truck.

Parcel post orders receive prompt shipment as do express orders; or better yet, if you live in driving distance, take your truck or car and come over and you will have what you want when you want it. Have you our Lewis Bee Supply catalogue or Beginner's Book? If not a post card will bring same. For service and the best in apiculture address the

DEROY TAYLOR CO., NEWARK, Wayne County, NEW YORK

Do not forget the State meeting at our Home Apiary, August First.

QUEENS - ITALIAN - QUEENS

BRED IN ONTARIO FROM DOOLITTLE STOCK



1919

PRICE LIST

1919

Begin Delivery June 15	1	6	12	50
Untested	\$1.00	\$5.50	\$10.00	\$37.50
Select Untested...	1.25	7.00	13.00	50.00



Send us list of your requirements **early** so as to insure date of delivery. We are booking orders now, 25% down. We clip queen's wings free of charge on request.

RUMFORD & FRETZ :- :- FOREST, ONTARIO

SAFETY GUARANTEED

WE will now book orders for our superior Italian bees and queens for spring delivery. There is absolutely no foul brood here and never has been; the closest we know of is over two hundred miles distant. You absolutely can't get it from buying bees from us. We do not know of anyone having perfect success shipping bees in packages, so are offering you as many bees as you wish to the package, shipped on a comb of brood which we guarantee to hatch out over a pound of bees. We guarantee safe arrival and satisfaction in every respect. This manner of shipping will eliminate loss in transit, as you know that your bees will arrive in the best of condition, that you will have no trouble in getting them from the packages to the hives, and that you can leave them knowing they will not swarm out. If the weather is bad on arrival, you won't have to nurse them as you will packages. You can safely figure on having as many colonies as you order packages. They will be gaining in numbers from the time they are packed until after your honey flow. If you want something sure, try them and be certain of your honey crop. If there was any chance of giving you foul brood we wouldn't offer them to you. The comb will be worth at least 45c to you. We guarantee our bees to be as good as can be had. We are not going to book more business than we can deliver promptly.

WE PRODUCED 12,348 QUEENS LAST YEAR

IF ANY OTHER QUEEN-BREEDER IN THE WORLD PRODUCED MORE THAN THAT AND WILL GIVE SATISFACTORY EVIDENCE THAT HE DID, WE WILL TAKE THIS OUT. Satisfactory service and SUPERIOR bees and queens did it. Quality and service did it. Next year we will tell you what we did this year. Comb of brood guaranteed to hatch more than a pound of bees, \$3.00. Additional bees at \$2.50 per pound. Any quantity you want. These packages cannot be sent by mail. Satisfactory goods or your money back and that right now.

PRICES OF QUEENS.

	Before June 15th			After June 15th		
	1	12	50 or more	1	12	50 or more
Untested	\$1.50	\$15.00	\$1.10	\$1.00	\$11.00	\$.90
Selected Untested. . .	2.00	20.00	1.50	1.50	15.00	1.30
Tested	3.00	33.00	2.50	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

Prices of Dr. Miller's Queens

	Before June 15th			After June 15th		
	1	12	50 or more	1	12	50 or more
Untested	\$1.80	\$18.00	\$1.25	\$1.25	\$13.25	\$1.10
Tested	3.00	33.00	2.50	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

We have a full line of Root's Goods and guarantee to fill all orders within three days after receipt and all mail orders the same day received. Try us on sections, foundation, smokers and all small orders by mail.

A full line manufactured from Cypress, the Wood Eternal, which we guarantee to please you. Solid one-piece covers made from the best wood in the world, without a crack or a crevice, at the price of other wood covers. Beeswax wanted. Send for catalog.

The Penn Company, Penn, Miss.

Queens--Rhode Island--Queens

Italian Northern-bred queens. Very gentle and hardy. Great workers. Un-tested, \$1; 6 for \$5. Circular on application. Queens delivered after June 1.

O. E. Tulip, Arlington, Rhode Island
56 Lawrence Street

"Queens of Quality"

The genuine "Quality" kind of 3-band Italians — bred strictly for business. Write for circular.

J. Ivan Banks, Dowlstown, Tenn.

"falcon"

Your Duty—Do You Know It?

It is to get ready for the coming season and be ready for the first honey flow. This will net you profits. Prepare your bees for a big year and take no chances. Get the best to do with and have the best results.

Our Duty—Do We Know It?

We get the beekeepers ready for the big season. Supply them with the best of everything with which to work and get the best results. Send us a list of your requirements for quotation. TO DELAY MEANS LOSS TO YOU. "Falcon" service cannot be beat. Catalog and Simplified Beekeeping on request.

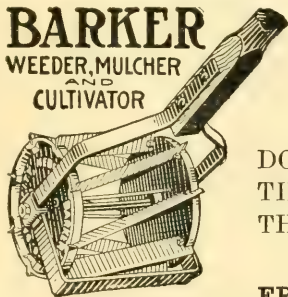
W. T. Falconer Manufacturing Company

Falconer, New York

"where the best bee hives come from."

"falcon"

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WEEDER, MULCHER
AND
CULTIVATOR



Weeds and Mulches In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

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Dept. 10

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What is Sweeter than Honey?



A. I. ROOT

The Man behind the Root Line

An Unprecedented Demand

For Honey-extractors, due to the high prices of extracted honey, has made it necessary for us to more than double our output for these machines. Still we cannot keep up with orders. If you anticipate buying an extractor this year, get your order in at once.

Prices will **NOT** be
Reduced this Season

THE A. I. ROOT COMPANY, MEDINA, OHIO

New York Chicago Philadelphia San Francisco Los Angeles
St. Paul Indianapolis Norfolk

BEEKEEPERS!!

Beware of an over-production of extracted honey and an under-production of comb honey. Those of you who are equipped for COMB HONEY--STICK TO IT!

BUY LEWIS SECTIONS

MILLIONS IN STOCK NOW WAITING FOR
YOUR ORDERS

If you have never used LEWIS SECTIONS ask your neighbor about them

LOOK FOR THE
BEEWARE BRAND



ANNOUNCEMENT

ADDITION TO THE BEEWARE FAMILY

Following the Lewis Policy of co-operation between manufacturer and Beekeeper, we are glad to announce the active connection with our company of Mr. Kenneth Hawkins, bee specialist, who for seventeen months was in charge of bee culture extension work in the fifteen Southern States for the United States Department of Agriculture under Dr. E. F. Phillips at Washington. The subject of this announcement, altho a younger member of the beekeeping fraternity, has been devoting his entire time to bee culture as a livelihood since 1909. He is well known to many beekeepers as formerly the breeder of "Quality Hill" queen bees at Plainfield, Illinois, and has an acquaintance with hundreds of beekeepers in the South, as well as in the middle West, thru his extension work in bee culture with the United States Government. At present Mr. Hawkins owns or operates apiaries in Illinois,

Florida, Texas, and Wisconsin. He will devote his entire time to the service of the G. B. Lewis Company and will handle bee-culture problems in their relation to the manufacture of bee supplies and will be ever ready to answer any queries on bee culture which may be sent to the office of the G. B. Lewis Co., or any of their distributors.

G. B. Lewis Co., Watertown, Wis.

Gleanings in Bee Culture

Vol. XLVII

JUNE 1919

No. 6



A FAIR SWARM CONTROLLER

JUNE TIME IS SWARMING TIME

We are always in the market for HONEY and BEESWAX.
Do not sell until you have seen us.
We will pay you spot cash for any thing you sell us.
Get our prices on cans and cases.

Los Angeles Honey Co.

633 Central Bldg., Sixth and Main Sts.
Los Angeles, California
Telephones: Home 10419, Main 5606

Dixie Beekeeper

The first edition of this 32-page Bee Journal is now out, covering the whole Dixieland, containing the very best our industry has to offer here. We ask for your subscription one dollar a year. Sample copy free.

Dixie Beekeeper . Waycross, Ga.

Beeswax Wanted

In big and small shipments to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1918. We are paying higher prices than ever for wax. - We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck

The Comb-foundation Specialist
Augusta, Kansas
Established 1899

PRODUCE MORE COMB HONEY
Use The

Lotz 1-Piece Section

THE KIND That DOES NOT BREAK
IN FOLDING

We manufacture millions of sections each year and therefore can fill your needs at all times.

We also carry a complete line of other Bee Supplies. Send us your inquiries and we will be pleased to quote your our best price.

Our 1919 catalog free for the asking

August Lotz Co., Boyd, Wisconsin

"Griggs Saves You Freight"

TOLEDO

Do you realize, Mr. Beeman, that the first of March has passed? June will soon be here with its usual hustle and bustle for Bee Supplies.

Why not send us your order now and get the goods wanted? Don't delay. A list of goods wanted, brings prices back by return mail.

BEESWAX

We use large quantities. Cash or in exchange for supplies.

Free catalog ready to mail.

S. J. GRIGGS & CO.,

Dept. No. 25 Toledo, Ohio
"Griggs Saves You Freight."



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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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A. I. ROOT
Editor Home Dept.

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Assistant Editor

H. G. ROWE
Managing Editor

HERE IS A REPRODUCTION OF Muth's New Home in Cincinnati



Anticipating the wants of the trade and to meet the demands of our customers, we are now located at Pearl and Walnut Streets, carrying tremendous stocks—making this the largest Honey House in the country.

WHY YOU SHOULD BUY NOW! We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointment if you send your order for bee supplies to MUTH NOW.

MUTH'S ADVANTAGES! We sell at factory prices, save you freight and give you the finest bee supplies manufactured.

LEWIS BEEWARE DADANT'S FOUNDATION ROOT'S SMOKERS, EXTRACTORS, ETC.

Our new 1919 catalog sent for the mere asking. Drop us a card now! **OLD COMBS AND CAPPINGS.** Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

WANTED, COMB HONEY. Comb and Extracted Honey find ready sales here. Tell us what you have. We buy beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city come and see us.

THE FRED W. MUTH COMPANY

Pearl and Walnut Sts.

"The Busy Beemen"

Cincinnati, Ohio

*Bee Supplies**Bee Supplies*

Service and Quality

Order your supplies early so as to have everything ready for the honey flow, and save money by taking advantage of the early-order cash discount. Send for our catalog; better still, send us a list of your supplies and we will be pleased to quote you.

C. H. W. WEBER & CO.

2146 CENTRAL AVE.
CINCINNATI, OHIO

WHAT OTHERS SAY ABOUT SUPERIOR FOUNDATION

Allow us to state that we have never met Mr. Gosvenor, and this testimonial comes to us entirely unsolicited. We have never gone so far as to advertise that the "bees take to ours first," but we are pleased to note that Mr. Gosvenor's bees took to ours first. This verifies our own exhaustive experiments whereby we have proved that any such faculty among the bees is determined entirely by local conditions, such as the freshness of foundation used, the weight of the sheets, the nature of the honey flow, etc. We do claim, however, that our "SUPERIOR" Foundation is not surpassed in quality by any other make,

READ THE FOLLOWING

Nampa, Idaho, Mar. 12, 1919
Superior Honey Co.,
Ogden, Utah.

Dear Sirs:—I am shipping you 62 pounds of beeswax. Please manufacture it into Medium Brood Foundation. I don't want any better than you made me last year, as *my bees took to yours first*. Kindly give me an estimate of number of sheets, as I want to get enough for 100 hives.

Yours truly,
GEO. GOSVENOR.

SUPERIOR HONEY CO., OGDEN, UTAH
(MANUFACTURERS OF WEED PROCESS FOUNDATION)

HONEY MARKETS

The past month shows no decided change in the honey market. There is little demand and prices remain about the same. From reasons stated on the editorial page, however, there is hope that prices may begin to pick up somewhat.

U. S. Government Market Reports.

HONEY ARRIVALS SINCE LAST REPORT.

Medina, O., and Keokuk, Ia.—No arrivals.

Hamilton, Ill.—150 lbs. arrived.

SHIPPING POINT INFORMATION.

Los Angeles, Calif.—Warm, clear. Practically no demand, no sales reported of old crop which is practically cleaned up. Light supplies of new stock are just arriving, but too few sales to establish market. Beeswax: less than carlots, 38c per lb.

San Francisco, Calif.—Too few sales to establish market.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the price at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding two weeks. Prices represent current quotations.)

New York.—Imported: 138 barrels West Indies, 922 barrels Mexico, arrivals incomplete. Exports: 690 cases, 240 barrels to France, 888 barrels to Sweden, 50 barrels to Denmark, 65 cases to Norway. Practically no demand, market unsettled and weak, very few sales. Sales to jobber: extracted, Western, per lb., light amber 13-15c, white 15-17c. Porto Rican and Cuban, \$1.25-1.50 per gallon. New York State, buckwheat and clover, no sales reported. Beeswax: imported, 150 bags from South Pacific ports. Demand and movement improving, market firm. Sales to jobbers: per lb., dark 37-38c, light 38-40c, mostly 39c.

Denver.—No carlot arrivals. Supplies moderate. Demand and movement very slow, market dull, little change in prices. Sales to jobbers: extracted, Colorado white 18c per lb. Beeswax, cash to producer 36c per lb.

Chicago.—No carlot arrivals, no cars on track. Demand slow, movement draggy, market weak. Sales to jobbers: Northern and Western, extracted, per lb., white 17-20c, light amber 15-16c. Comb, supplies very light. No. 1, 24-section cases \$7.00-7.25.

St. Paul.—Supplies cleaning up. Demand and movement very slow, market steady, no change in prices. Sales direct to retailers: comb, Western, 24-section cases, fancy white \$7.25. Extracted, fancy Western 60-lb. cans 25c per lb.

Cincinnati.—No arrivals. Extracted, supplies liberal. Practically no demand, market weak, no sales. Comb, supplies practically exhausted. No jobbing sales. Beeswax: supplies moderate. Demand and movement good, market steady. Sales to jobbers, pure yellow 42-45c per lb.

Minneapolis.—Supplies cleaning up. Demand and movement very slow, market steady, no change in prices. Sales direct to retailers: comb, Western, 24-section cases, fancy white \$7.25. Extracted, Western, 60-lb. cans fancy 20-23c per lb.

Kansas City.—Approximately 75 packages by freight arrived. Supplies moderate. Demand slow, movement draggy, market dull, little change in prices. Sales to jobbers: comb, No. 1, light, 24-section flat cases, Colorado, \$6.50, Missouri \$7.50-8.00. Extracted, Colorado, 16c per lb. Beeswax, 30-35c per lb.

Philadelphia.—No arrivals since last report. Practically no demand or movement. Too few sales to establish market.

St. Louis.—Supplies moderate. Demand and movement slow, market dull. Sales to jobbers: extracted, per lb., Southern amber in barrels 15c, in cans 18-20c. Comb, practically no supplies on market, no sales reported. Beeswax: prime, 35c per lb.

Cleveland.—Supplies light. Demand and movement slow, market steady, little change in prices. Few sales. Sales to wholesale confectioners and bakers: extracted, Western 60-lb. tins white clover 20-24c per lb.

EXPORT DISTRIBUTION OF HONEY MARCH 22-31.

Total, 460,274 lbs.: to Denmark, 117,644; to France, 59,150; to Sweden, 58,730; to United

Kingdom, 218,050; to Canada and Newfoundland, 3,045; to West Indies, 1,362; to all others, 2,293 lbs.

Charles J. Brand,
Chief of Bureau.

Washington, D. C., May 14.

General Quotations of Wholesalers.

[These firms are asked to quote the wholesale price they make to retailers. Accordingly their prices must be figured at least one profit higher than the price paid the producer. The large dealers do not quote prices in print that they will pay futrely to producers.]

NEW YORK.—We quote from several of the leading honey dealers in New York City, under date of May 15:

"Our market is quiet and lower prices are generally expected. Extracted honey, amber in barrels, \$1.50 per gallon. Clean, average yellow beeswax, per lb., 37-38c."

"The market still going lower. Nevertheless, some exportation has been done, but the markets abroad have declined also. Extracted honey, white, per lb., 15c; light amber in cans 14c, in barrels 9c; amber in cans 12c, in barrels 8c. Clean, average yellow beeswax, per lb. 36c."

"Moderate supply of white extracted. Large stocks of foreign amber in barrels. Demand slow. Many inquiries for export, but few sales. Extracted honey, white, per lb., 17; light amber in cans 15c, in barrels \$1.25; amber in barrels \$1.15. Clean, average yellow beeswax, per lb. 35-37c."

LIVERPOOL.—Since our last report the market has gone from bad to worse and what honey has been sold has been of the poorer grades, about 10 tons West Indian having been sold at 16-18c per lb., and a similar quantity of Chilean at 17.8c per lb. These sales have been made by first hand importers. The market is further made worse by outside speculators who have been operating during the past year and were caught at the fall of the market with stocks on hand, which they have placed on the market. This action has naturally tended to make the market weaker than it otherwise should have been. The future, however, does not look rosy, as buyers are making still lower offers for future shipments. Extracted honey is therefore worth on the spot here 16 cents per lb. In beeswax there is no change to report. The value of good grade is about 42 to 43 cents per lb.

Taylor & Co.

Liverpool, England, Apr. 26.

ST. LOUIS.—Our honey market is very dull and unsettled. Practically no demand. Very little comb honey here but liberal supplies of extracted. Quotations nominal. Comb honey, fancy, per case, \$6.50; No. 1, \$5.50. Extracted, light amber, in cans 16-18c; amber, in cans 14-16c, in barrels 12-14c. Clean, average yellow beeswax, per lb., 35c.

R. Hartman Produce Co.

St. Louis, Mo., May 16.

KANSAS CITY.—Comb honey, supply light and demand light. Extracted, supply heavy and demand light. Light amber, in cans 16c. Clean, average yellow beeswax, per lb. 35c.

C. C. Clemons Produce Co.

Kansas City, Mo., May 16.

PHOENIX.—Daily inquiries are coming in for prices on honey. Quite a few have extracted and have honey on the market to sell but are holding. Some are selling at \$15 per case on account of wanting money.

L. M. Lossing.

Phoenix, Ariz., May 15.

CHICAGO.—There is practically no comb offered. Extracted remains in a waiting attitude, sales being in a single package way and very little demand for any, aside from the best grades of white clover and alsike. Comb honey, extra fancy, per case \$8.00, per lb. 35c; fancy per case \$7.50, per lb. 33c; No. 1, per case \$7.00; No. 2, per case \$6.00. Extracted honey, white, per lb. 16-18c; light amber, in cans 14-15c, in barrels 13c; amber, in cans 10c, in barrels 9c. Beeswax, per lb., 35-37c.

R. A. Burnett & Co.

Chicago, Ill., May 15.

TEXAS.—A ready sale as quality is good, tho only about one-half expected crop will be secured from huajilla on account of too much rain, also weak colonies. Comb honey, extra fancy, bulk 20c. Extracted, white, per lb. 18c. Clean, average yellow beeswax, per lb. 36c. J. A. Simmons.

Sabinal, Tex., May 13.

PORTLAND.—Practically no demand for honey at present, in spite of large stocks held at high prices. Prospects are good for honey crop if nothing happens. Comb honey, extra fancy, per case, \$8.00; fancy, \$7.50; No. 1, \$7.00; No. 2, \$6.50. Extracted honey, white, per lb. 18c; light amber, in cans, 16c; amber, 15c. Beeswax, none offered. Portland, Ore., May 12. S. J. Fasching.

HAMILTON.—Honey moving very slowly just now. Some is offering from apiaries; but no encouragement to buy, the way trade is. Extracted honey, white, per lb. in cans, 25c; light amber, in cans, 22c. F. W. Fearman Co., Ltd.

Hamilton, Ont., May 16.

MONTREAL.—Stocks ample. Demand is improving on all lines. Comb honey, extra fancy, in case, 32c; fancy, 30c; No. 1, 28c; No. 2, 25c. Extracted, white, per lb., 25c; light amber, in cans 22c, in barrels 21c; amber, in cans 21c, in barrels 20c. Gunn, Langlois & Co., Ltd.

Montreal, Can., May 16.

CUBA.—Extracted honey in barrels, per gallon, light amber, \$1.05; amber \$1.05. Clean, average yellow beeswax, per lb., 30c. Adolph Marzol.

Matanzas, Cuba, May 7.

HONEY-PRODUCERS' SERVICE

By Wesley Foster

I believe that I can help any beekeeper with a problem to solve—whether supply, producing, financial or selling—if he will write me a letter or pay me a visit and explain it to me.

Queens.

We are operating 2,500 colonies of bees this year. They are building up strong and are all ready now for the honey flow. At present we are re-queening quite a few. We expect these queens to pay for themselves twice over. One of the best queen breeders in the United States is raising our queens for us from selected stock. If you need some good, warranted queens, unless you order now it will be too late.

Supplies.

We are carrying a complete line of supplies and honey containers. You can save some money on every order by buying of us.

Beeswax.

We need some more beeswax. Have you any to spare? We can always use it at the highest market price.

A New Can.

I would like to tell you about a new 5-gallon honey can that I now have. It is by far the best can that I have ever seen—practically one-piece. The edges are rolled and are soldered by a special process inside and out. It has a 3-inch cap, which as you know, makes it easy to fill. We are the only ones handling this new can. It costs only a cent more than the old type.

Be sure to drop me a line at once in care of The Foster Honey & Merc. Co.

Boulder, Colorado.

BEEES We furnish full colonies of Italian bees in double-walled hives, single-walled hives, and shipping boxes; 8-frame nucleus colonies, and bees by the pound. Tested Italian queen, \$2.00; untested, \$1.50.

I. J. STRINGHAM, GLEN COVE, N. Y.

Advertisements Received too Late to Classify.

ITALIAN QUEENS.—Northern-bred, three banded, highest grade, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price, 1, \$1.00; 12, \$11.00; 50, \$45.00. Send for circular.

J. H. Haughey, Berrien Springs, Mich.

FOR SALE.—Leininger's strain of Italians have stood the test for 35 years. We will offer queens from this famous strain beginning June, as follows: One untested queen, \$1.50; 6, \$8.00; one tested queen, \$2.00; 6, \$11.00; select breeders, \$15.00 each. Fred Leininger & Son, Delphos, O.

FOR SALE.—One Root capping melter with stone, \$10.00; one without stone, \$5.00; 10 Root chaff hives with tight bottom, good condition, \$1.50 each; 16 Root old-style 2-story chaff hives, good condition, \$1.00 each; 100 wood-wire 10-frame queen-excluders, 35c each.

F. W. Lesser, East Syracuse, R. F. D. No. 3, N. Y.

FOR SALE.—Michigan-bred Italian queens. Am now booking orders for June 15th delivery. Three-band only. Untested, 1, \$1.00; 12, \$10.00; 100, \$80.00; tested, \$1.75 each.

D. A. Davis, North Detroit, Mich.

Leather-colored Italian queens, tested, June 1st, \$1.50, untested, \$1.25—\$13.00 a dozen.

A. W. Yates, 15 Chapman St., Hartford, Ct.

EXCHANGE.—Two long-distance telephones for reversible extractor or offer.

J. Brasser, Lewiston, N. Y.

WANTED.—Situation by young man experienced with bees. Out-apiary job preferred. References furnished on request. Write, R. D. Baker, c/o Mrs. Rose Edwards, 5079 Catalpa Ave., Chicago, Ill.

Special Notices by A. I. Root

SWEET CLOVER—A CORRECTION.

On page 329, at the bottom of the left-hand column, where it says "October, 1919," it should read October, 1920. Such a growth of sweet clover in three months would be indeed wonderful. Fifteen months sounds more sensible.

WILL THE SALOONS AND THE LIQUOR-TRAFFIC OBEY OUR OHIO LAW?

As we go to press this 19th day of May the above question confronts us. Ex-president Taft says, in substance, now comes the question of loyal citizenship; and will we as a people obey the laws of our State, or will we obey only when the law "comes our way," and then "trample it under foot," when it happens to go the other way?

THE NEW WHITE SWEET CLOVER THAT GROWS AS HIGH AS YOUR HEAD AND BLOSSOMS PROFUSELY THE FIRST SEASON.

After my mention of this new sweet clover (see p. 110, Feb. issue, 1919; p. 629, October, 1918), there were so many orders that our stock of seed was exhausted. Since I have returned from Florida I have found some seeds from the old stalks of last year that germinate a fair per cent. You may have a little pinch of this seed if you care for it. Just send us an addressed stamped envelope. If you have sent once and did not get any seed you may just send a postal card. If you secure even one single plant it may be well worth while.

A Lot of Them

Have ordered their goods for this summer; in fact, we have been very busy here in Syracuse, and have received orders for goods as in May and June of former years. Bee-keeping is getting to be more of a business, and nearly every year more is secured from the bees than any thing else on the farm.

For the money and work there is nothing to beat the bees. . .

F. A. SALISBURY

1631 WEST GENESEE STREET
SYRACUSE, NEW YORK

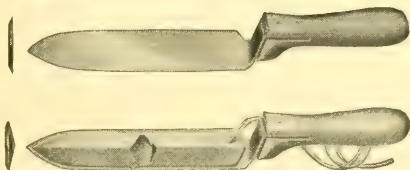
NEW BINGHAM BEE SMOKER



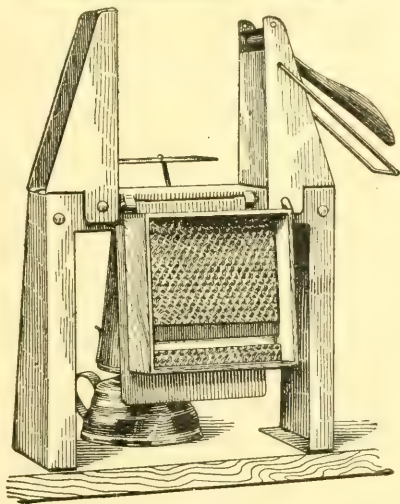
The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey-producers of the World. It is made in four sizes and has a leather bel-lows.



The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old timers will remember. Our Perfect Grip Cold Handle is one of the improvements.



The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.



The above specialties can be secured from us direct by post or from practically all dealers and manufacturers of supplies, with the exception of the Root Co., and agencies. Our 1919 illustrated catalog and special circulars will be mailed on request.

Tin Honey-packages

- 2 lb. Friction top cans, cases of 24
- 2 lb. Friction top cans, crates of 612
- 2½ lb. Friction top cans, cases of 24
- 2½ lb. Friction top cans, crates of 450
- 5 lb. Friction top pails, cases of 12
- 5 lb. Friction top pails, crates of 100
- 5 lb. Friction top pails, crates of 203
- 10 lb. Friction top pails, cases of 6
- 10 lb. Friction top pails, crates of 113

Write for prices on friction top cans and pails and 60-lb. cans, giving quantity wanted.

A. G. Woodman Company

Grand Rapids, Mich, U. S. A.

The Pendulum Swings

DON'T BE CAUGHT WITH AN OVER PRODUCTION OF EXTRACTED HONEY

Have you ever watched the pendulum of a clock?---You know it always swings back at the end of its arc. Watch the pendulum of extracted honey prices.---Experts in the marketing of honey say high prices are based largely on export demand.

NOW LISTEN

From July 1st, 1918, to February 28th, 1919, there were over seven million pounds of honey exported from this country (these figures are from the U. S. Bureau of Foreign and Domestic Commerce)---When the foreign demand falls off during the reconstruction period and when production abroad is renewed what will happen to extracted honey prices and where will you be then, Mr. Extracted Honey Producer?

Better put on a few comb honey supers this year---it will pay.

Buy Lewis Sections---They are Best

THERE IS A DISTRIBUTOR NEAR YOU

Booklets on Beekeeping

The G. B. Lewis Company has prepared a series of "How" booklets on various phases of beekeeping for distribution to beekeepers. The information contained in these booklets is authoritative and has been prepared especially for beginners in bee culture. A nominal charge of 5 cents, postpaid, is made for each booklet to insure their distribution to interested persons. "How" booklets now ready for distribution are:

- "How to Manage Bees in Spring"
- "How to Prevent Swarming"
- "How to Buy Queen Bees"
- "How to Start Beekeeping"
- "How to Locate an Apiary"
- "How to Feed Bees"
- "How to Transfer Bees"
- "How to Care for Nuclei"
- "How to Unite Bees"

Free Beekeeping Advice

The G. B. Lewis Company will welcome the opportunity to aid any beekeeper in solving apiary problems and offers the benefit of the advice of the experienced beekeepers associated with the Lewis Company. If the information can be gotten we can get it. No charge will be made for this service, which will be available to all beekeepers at any time. Enclose a stamped, addressed envelope to insure our mailing a reply correctly, in case you are writing for information only. Write all inquiries on a separate sheet of paper from other correspondence, addressed to The G. B. Lewis Company, Watertown, Wis., attention of Bee Specialist. Lewis experts are in touch with beekeeping in all parts of the world.

THIS IS THE BRAND



LOOK FOR IT

**G. B. LEWIS
COMPANY**

MANUFACTURERS OF BEEWARE

WATERTOWN, WIS.

GLEANINGS IN BEE CULTURE

JUNE, 1919

EDITORIAL

ONE OF OUR SUBSCRIBERS, W. J. Harvey of Upalco, Utah, reports for last year



**Prize to be
Given for the
Best Record.**

the following remarkable record: "Last year I obtained 908 lbs. of surplus from one

colony, and would like to learn how near this comes to being the world's record. I have plenty of sweet clover and about 100 days of honey flow. A yield of 171 lbs. in ten days was the best for that period. The only special attention this hive had was to be extracted from every ten days; or, when extracting was not possible, I gave plenty of storage room. It always took three supers to hold the bees, with one to two inches of air above the top super. With 40 hives, and 'two increase,' I got 240 five-gallon cans of honey. As this good hive made 15 cans, you can see that there were only three cans more than twice the average, and that is nothing unusual, according to what I read. There was only one queen, and no bees nor brood given to this hive during the season. I fed outdoors from early spring till the honey flow, and from frost to freeze. I also fed 'natural dry powder'—pollen mixed about $\frac{1}{4}$ to $\frac{3}{4}$ flour."

Can any of our readers beat this? If every one could do as well as this in the bee business, many of them, at least, would give up their banks and their gold mines. But not every one is able to do it. If any one can break this record of 908 pounds surplus from one colony, either in the United States or Canada, let him hold up his hand and we will publish the record.

Gleanings has decided that it will send a \$20 breeding queen to the man in the United States or Canada who can prove the highest record for one colony during 1919, giving names of supporting witnesses if required.

IN TALKING WITH a producer of comb honey in Nevada, who operates 3,000 colonies, and produces several carloads of comb honey each season, we learned several valuable



**Short Cuts in
Comb-honey
Production.**

hints which may save work for other producers. Perhaps some of his ideas may not be as successful under different conditions. He operates a large ranch for alfalfa hay

and seed, and, incidentally, gets 800 pounds of alfalfa seed per acre, while a ranch ten miles away, without bees, produces only 250 pounds of seed.

He prepares his supers some time in advance, ready to place on the hives when the honey flow begins. They must be trucked some distance. He always uses a bottom starter. For the top starter he finds the best results in straight even combs come from using a V-shaped starter. Other forms under his conditions are inclined to curl, resulting in irregular combs. When the sections are in the super, he paints their top surface with hot paraffin. This excludes all moisture, travel-stain, or propolis; and the work of scraping is only a small fraction of what it is without this protection. If the scraping is done in a cool temperature the film of paraffin comes off easily, carrying with it all stains or propolis. Should the supers remain unused or unfinished till another season, the paraffin protects the sections from dampness, mildew, and discoloration.

Mr. Warren visits his bees three times each season. In April he goes thru, dividing and equalizing, making approximately three colonies from one. At the opening of the honey flow in July he unites three hives into one, piling the supers on six or eight high, letting the queens fight it out. He returns in the fall and takes off the honey. By this plan he has three queens building up a working force during the breeding season; and also has a big working force during the honey flow but with reduced breeding at that time—all this with a minimum of labor.

THE SHORTAGE OF SUGAR was not the sole cause of the high price of honey during



**The Price of
Honey
Looks Up.**

the war. People have been gradually learning to use more and more honey, and a steadily increasing number of families are coming to regard it as a necessary article of diet. They have come to recognize it as nature's concentrated sweet, a form of carbohydrate that is easily assimilated by the human system. Many of the half million people in this country alone, suffering from diabetes, as a result of eating too much common sugar or candy, have learned that, if substituted

in time, the trouble may be stopped by the use of honey instead of sugar.

Also those factors, such as a greatly inflated currency, Europe's acute need of food, and the labor situation, that have, during the war, increased the cost of living 61.3 per cent, have also had their share in increasing the price of honey.

Last fall, and up to the middle of January, honey was held at its highest figures. As the price remained stationary, with no apparent tendency to drop, many loaded up, when, without warning, the ban was lifted from sugar. The arts and trades that could not get their requirements of sugar up till then, now figured that they could make a syrup for about seven cents against honey at three times the price. All at once they were seized with a panicky desire to unload the higher-priced article for which they had paid 22 and 23 cents, and buy sugar at nine cents or a seven-cent syrup that they could get in unlimited quantities. Some of the big icecream concerns that had been using honey by the carload now put it on the open market at 18 cents, while they had, as they admitted, paid 22½ cents for it.

Then there was the ever prudent housewife who likewise was compelled to use honey to complete her requirements. Now that the restrictions on sugar had been removed, why should she pay 40 and 50 cents per pound for honey when she could now get all the sugar she needed at 10 cents or a syrup at 7? She didn't see that honey would go further because it had more food value per pound, and because it had a flavor. Oh, no! she could get a syrup for one-fifth the cost of honey. The honey she had would be "kept for company," and, of course, she would not buy any more. Such a course would slow down sales for the time being.

There was one more important factor; and that was that Europe stopped buying honey temporarily—probably because it was concluded, now that the armistice was signed, there would be a drop in all food products.

The heavy export demand during the last two years of the war had a tremendous influence on the price of honey. Buyers were out everywhere hoping to make a "big scoop" by selling it for export. Many of them did make a "scoop." When, therefore, this demand suddenly stopped early last winter many found themselves overloaded. The result was, these buyers, instead of being out to get more honey, were trying to unload before the market went too low. One broker, we are informed, lost \$42,000 on 7,000 cases of honey he unloaded. Others lost like amounts. All this made buyers cautious. The result has been that sales have been few and far between. Buyers have been waiting to see where the bottom would be before investing.

This would be discouraging; but, happily, the cloud has a silver lining. The bottom has been reached, and the market is now looking upward. The conditions that caused the previous high prices still exist; with

the exception of the sugar situation, which has changed. Yet even that is now improving. In addition are several new factors operative for higher prices.

The first important factor we shall consider is whether California will have a crop; and if so, how large? It should be borne in mind that the seasons in California are very uncertain. When there has been 18 inches or more of rainfall in the southern part of the State, a crop of sage is almost a sure thing. With the certainty of a crop, and a prospect of 500 cars to go east, the market is inclined to weaken. If, however, there has been insufficient rainfall, the market east as well as west is inclined to stiffen. This year California has had only ten inches of rainfall for most sections in the southern part of the State. These sages are not yielding as they should, and the crop will be very short from present indications. While orange is usually a sure crop, it is going to be light this year. Moreover, orange in the aggregate represents only a small part of the amount produced from the sages, wild alfalfa, and wild buckwheat, for sage is often mixed with either or both of the two last-named sources. Northern and central California usually have a crop; but we are advised that the prospects are not of the best.

Taking it all in all, it is evident that the California crop will be light. There will be some sage, but not many cars from present indications, and the editor has been over the State pretty well.

The second factor that has an influence on the price of honey is the price of sugar, and whether it will be scarce or not. It has been stated that there is going to be a scarcity of sugar this summer. Already the price is beginning to go up. Candy has taken a sharp advance; and soda-fountains, even in addition to the war tax, are beginning to charge ten cents where formerly they charged but five.

The third factor is that the nation is going dry. Experts tell us that this will make an enormous demand for sweets in all forms. Saloons everywhere are preparing to put in candy and to handle soft drinks. They know that the craving for alcohol can be met by some form of sugar. While liquor is a temporary stimulant, sugar (or, better, honey) is a more lasting stimulant—a stimulant that nature expects and one that leaves no bad after-effects unless eaten to excess. Now, then, if there is going to be such a demand for sugar, surely honey will find its rightful place.

Another very important factor is that the export demand for honey is beginning to pick up. There is no question that an increased export trade will help the honey market considerably.

The price of honey, for the reasons named, is sure to begin advancing—just how much no one can predict. It has evidently reached rock bottom, and should go up; but, as sure as fate, it will not go up to wartime prices.

AFTER I had been here some four or five months I thought I knew something about the climate; but this year the time when the honey plants should yield is all mixed up and out of harmony with the climate. The mountain sage and the orange blooms are all jumbled together, both yielding at the same time. Orange, by rights, should have come first about three weeks ahead of the sage. The wild alfalfa and the wild buckwheat—well, they too have forgotten all about the calendar. The blooming things are all blooming this year at all kinds of times. Old residents tell me this is nothing very unusual—that the honey plants in this State come into bloom when they please. It is very unfortunate for the beekeepers when they all come together, as they would very much like to have them come so they could catch a yield from each.

Value of Packing in California.

We have sunshine here, and lots of it, but also cool nights and lots of them. Now, this is very hard on bees, as I have pointed out in former articles. This reminds me that my experiments in packing bees this spring worked out magnificently. The little three-frame colonies that I found trying to occupy two stories in January, and which I reduced to one story and packed in paper, have built up to strong colonies and are

MORE CALIFORNIA NOTES

Uncertain Times of Honey Flow a Disadvantage. Some Winter Packing Needed. Advertising in the Movies

By E. R. Root

now bringing in the honey. I am sure it is best to give the bees protection in California; but just how much and in what form I would not dare to say.

I find a large number of beekeepers, however, are making it a practice to confine their colonies in late fall to one story, putting a couple of sheets of newspaper between the upper and the lower stories, scattering the stores in both stories. In the spring, when the bees need more room, they will gnaw a hole thru the paper, go upstairs, and rapidly build up. I am sure that thousands of beekeepers in the State are losing because they do not confine their colonies to one story during the winter months when the climate here is so treacherous. What is the use of trying to make a colony warm two stories, wasting its energy and its supplies of honey, when it could much more economically warm one story? Taking the State as a whole, I am satisfied that a little added protection would save thousands upon thousands of pounds of winter stores. This is not a mere guess from a one winter's stay, but is based upon a knowledge of many spring seasons thru which I have been. I certainly know that protection in the spring back home pays and pays well.

Free Advertising.

By the way, as some of you may know, I have been trying to get a lot of free ad-



A quite characteristic view in the sage district in San Diego County. All the sage regions are in some of the most beautiful country in the world. A tenderfoot at least can sit down and enjoy the flowers and scenery for hours at a time.

vertising for honey thru the movies and in the newspapers. Thru the latter I have gotten page after page of writeups. In the former, dozens of pictures have been shown of me, and I have been "doctored" and "doctored" so much that the title seems to be clinging to me; but really I am just plain "Mr." and nothing more. Even the movies have got into the chronic habit of calling me "Dr." They have had me featured before 21,000,000 people illustrating the bee-sting cure for rheumatism and making me say that bee-stings are an "absolute cure." Don't you believe it. I never said it. Some of the real doctors will be pulling my ears—in fact, they have already done so in spite of the protests that I did not say so.

The movie people asked me how much I would charge to give them a series of my "stunts." I told them I would charge them absolutely nothing if they would let me feature honey. This was agreed to; but instead they featured my bee-sting cure, made it big and strong, while my honey—why, you can't see it on the screen with a telescope. I complained to the movie people that I objected to having the handle "Dr." stuck before my name, and that I wanted honey featured. "All right," they said. "What would you suggest?"

"We will go out to Eagle Rock in Griffith Park, Los Angeles," I said, "where there are some 40 or 50 colonies in that big rock that can be seen for miles around.

Get your machine ready and photograph me taking wild bees and honey out of one of these holes in the rock."

"Capital!" they said.

To make a long story short, they got me up in the air about a thousand feet high on



A characteristic bee range of mountain sage in California. The apiary is shown over at the left about halfway up the picture.

that rock. They could not get me up there again for all the advertising in the world.

It was understood that I was to work barehanded and bareheaded, reach into the hole, and pull the honey out. They set up the camera and went to reeling off the film to the tune of a thousand feet.

"That's dandy," they said. "You have



The Editor of Gleanings a thousand feet up in the air ready to take wild bees out of Eagle Rock in Griffith Park, Los Angeles. The picture was taken just before the fun began. The man in the background was one of the Pathe movie men who came up to assist. While the editor did not break his neck, he did lose the top of his head, as will be seen from the picture. The country below represents a part of Hollywood. The editor says you could not get him up on the rock again for love nor money. He was daubed with honey as well as stung. Easy to talk about afterwards, but no fun during the act, while the movie camera below was reeling off the picture.

gotten Douglas Fairbanks outclassed. No, sir; he would never dare go up there where all those bees are."

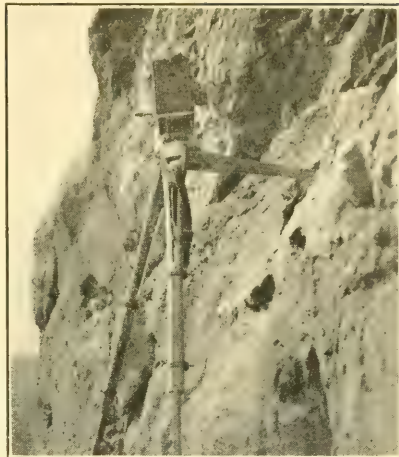
The stunt was not very difficult, because I could light a little piece of paper and stick it into the hole where the bees were. After the paper had burned out, and while the colony was in a roar from the smudge, I took the honey out. Easy enough when you know how, if it hadn't been so high up.

You can see from one of the pictures that I might have broken my neck when I was looking into the beehole to see where the bees and combs were. While that did not happen, I did lose the top of my head. The other man in the picture was one of the movie men who came to help me, and he stood his ground, or, rather, his rock, "until the show was over."

The view in the background is of Hollywood, one thousand or more feet below. "If I had lost my hold, would I have fallen that distance?" No. But I don't think I would have told this story.

The movies have not shown this picture yet, and I have been wondering whether the "stunt" busted the camera; and I am likewise wondering what kind of story there will be about honey, and how many millions of housewives will use honey after they see me taking it out of a rock.

By the way, those wild (?) bees were the finest Italians one could ever wish to see. They were real nice until I began to take away their honey. I was glad when the job was over; and when I went down into the



The Pathe camera that reeled off one thousand feet of movie film, catching the editor while he was in the act of taking wild honey out of the rock, as shown on page 356. It was no small job mounting this camera, but after a prodigious amount of work the thing was located, when the "grind" was begun. Zoological gardens below to wash my hands a big grizzly came up, and sniffed and snorted. I could not imagine what was the matter with him until I thought of the honey that was on my hands. It was evident he was a good judge of good honey, and I was sorry afterward that I did not bring down some of that wild honey covered with crawling bees to see whether he would eat bees and all.



NEARLY a half-century ago, A. I. Root wrote the following significant words for the pages of the then infant Gleanings in Bee Culture: "Per-

haps none of us has ever succeeded in inducing a colony of bees to do all they are capable of doing. In our apiary we feel satisfied that fully one-half the time of the bees has been wasted, judging from the way in which new swarms do business." During the half-century of development in beekeeping much progress, undoubtedly, has been made in providing favorable conditions to induce the "bees to do all they are capable of doing"; yet in the hands of experienced beekeepers, even now, some colonies apparently waste one-half or more of their time during the honey flow.

Difficulties in Selecting Breeding Queens.

In our earlier efforts to improve the bees by selecting breeding queens largely from the colonies which had given the greatest yield of honey, we were convinced that, un-

THE SPIRIT OF THE HIVE

Conditions Which Tend to Decrease or Increase Colony Activity. Strain of Bees Only One Factor

By Belva M. Demuth

der our management at that time, the yield was influenced more by conditions which depress or stimulate the activity of the workers than by inbred

characteristics. This made the proper selection of a breeding queen difficult, for in some cases colonies known to be of an inferior strain, and sometimes even of medium strength, gave the highest yield because of some fortunate combinations of conditions which stimulated them to do their utmost. The next year this same colony might come up to the honey flow in better condition as to number and vitality of workers, but give only an ordinary yield because of the presence of another set of conditions which tend to depress the activity of the workers during the honey flow. On the other hand, a queen suitable for a breeder may remain undiscovered one year because her colony gave an ordinary yield, while the next year her colony with no more and no younger workers at the beginning of the honey flow but with different colony conditions, might give

the highest yield of the apiary. This makes it difficult to measure accurately the excellent results which have already been attained by years of careful selection, since the yield during any given season is not determined by the number, age, and strain of the workers alone, but also, to a large extent, by conditions influencing the willingness of these workers to do their utmost during the honey flow. Since there is no established name for this important factor in honey production, we have been speaking of it in our apiaries as "colony morale." Its importance in honey production is probably not fully appreciated.

Conditions Depressing Colony Morale.

Stagnation of work, or loafing, during the honey flow is apparently closely associated with swarming. However, some strains of bees are more inclined to loaf than others; colonies having old, failing queens lack the energy of colonies having young, vigorous queens; and the queenless colonies, especially those hopelessly queenless, are not the most vigorous workers. It is also well known that anything which causes discomfort within the hive, such as too much heat, insufficient ventilation, or too small a hive, may start loafing. Insufficient room for ripening and storing of incoming nectar or conditions suggesting the completion of the season's work, such as sealing the honey adjacent to the brood-nest before super work is well under way, are highly conducive to loafing. Any condition within the hive which tends to check or in any way interfere with the freest and fullest expansion of the work within the hive apparently checks the work of the field force, and when the field workers make fewer trips per day to the field their presence within the hive intensifies the discomfort and stagnation of the work there.

Conditions Increasing Colony Morale.

Most beekeepers are familiar with the character of the work done by colonies that have not been checked in the free expansion of their work either previous to or during the honey flow. Such colonies reach the beginning of the honey flow while still on the up grade in their development and expand the volume of work until well into or toward the close of the honey flow. Other colonies thru some fault of environment are checked somewhere in the march of events and fall behind in yield, often even with superior forces at the beginning of the honey flow. With such a marked difference in yield between ordinary work and best work, we are not satisfied merely to prevent visible loafing, but in addition we must provide conditions favorable to the maintenance of the highest possible colony morale thruout the honey flow.

How Field Work May Be Increased.

We have many times observed the increased activity of the field force brought about simply by the addition of an extra set of empty combs to the hive. Thousands of younger bees immediately take possession

of the added combs and begin to repair and clean the cells. Usually within 15 or 20 minutes the rate at which workers are leaving the hive for the fields is greatly increased. Just how long this impetus may last, I can not say; but, since the beginning of a new job within the hive apparently stimulates the field force to greater effort, it has become a policy in our apiaries to induce the beginning of new work within the hive just as rapidly as can be done during the first half of the honey flow.

Beekeepers who have tried the experiment of extracting all the unripe honey every few days from both the supers and the brood-chamber have been surprised to note the increased energy with which these colonies worked. In this case the bees are held continuously to the beginning of the season's job and apparently work with the enthusiasm which accompanies the beginning of a great undertaking. If the same colonies had been given a single super and no additional room during a rapid honey flow, work would have slowed down long before the completion of work in this single super, since after the first few days there would have been no place for new work and no vacant cells for ripening the incoming nectar.

Colony morale, therefore, may be increased by enticing the multitude of oncoming younger bees out of the brood-chamber by giving them a job in comfortable and attractive supers. The drawing out of foundation, the building of new comb, the repairing and cleaning of extracting combs, the ripening and moving about of the raw nectar, and probably other activities within the hive when carried on under comfortable conditions and on an extensive scale, apparently, all tend to stimulate the field force to bring home more loads of nectar during the day. At the same time the absence of the field force from the hive during the heat of the day must add greatly to the comfort of the hive, thus facilitating the work and increasing the morale of the hive workers. These conditions are, of course, more easily maintained when producing extracted honey than when producing comb honey. In either case some modification of the well-known tiering-up principle in adding supers is applicable.

Good Effects of Skillful Supering.

In comb-honey production we usually give each colony two comb-honey supers at the time the colonies are reduced to a single story just previous to the beginning of the honey flow. These first supers each contain a row of bait combs in the middle of the supers to induce the bees to begin work in them promptly, for with strong colonies the morale is easily upset at this time unless thousands of younger bees can be induced to leave the brood-chamber and at once begin work of some kind in the supers. Full sheets of fresh foundation are not always sufficiently attractive, under our conditions, to pass safely the crisis of the first comb-honey supers.

As soon as all the foundation is drawn in

the first supers given and storing is well started, we give a new super containing full sheets of foundation in the sections, placing it next to the brood-chamber. If conditions are favorable this foundation will all be drawn within a day or two, and the shallow cells are then used for the evaporation of the incoming nectar. The bees apparently enjoy spreading out this raw nectar a little in each cell thruout the available comb surface, thus hastening its ripening by increasing the surface of the nectar exposed to the air.

Supers As Evaporating Chambers.

Thus far this recently added super is simply a ripening chamber or an evaporator containing a large amount of evaporating surface. Before it becomes a storage receptacle for more nearly ripened honey we take it from its position immediately above the brood-chamber to be placed on the top of the pile of supers, and at the same time another super with full sheets of foundation is put in its place next to the brood-chamber. This process is repeated as often as necessary to keep the bees busy drawing out foundation, always leaving the super which is nearest completion just above the one in which the foundation is being drawn, i. e., the second super above the brood-chamber.

By doing this, each newly added super affords new work in a most attractive location to entice more and more of the younger bees out of the brood-chamber; the foundation is drawn without checking the progress in the more nearly completed super which is immediately above; a large amount of new comb surface with shallow cells is being constantly added for the ripening of incoming nectar, and comb is being built faster than needed for the storage of honey, thus approximating the more favorable conditions present in extracted-honey production. At the same time, if the honey flow should cease unexpectedly, the last added super can be removed and the super nearing com-

pletion placed down on the brood-chamber; while the supers in which the least work has been done are placed on top to be removed after the unripe honey has been taken down and before the newly built and delicate comb is damaged by being soiled or propolized.

If we could foretell the number of supers each colony would need during the honey flow, we would by this method induce the bees to begin comb-building in that many supers just as fast as they would do so. We would then give them one extra super on top to contain the overflow of nectar during the process of ripening. Since we cannot foretell the number they will fill we try to avoid, on the one hand a too rapid expansion of the surplus room consistent with well-filled sections and, on the other hand, a lack of the stimulation afforded by the room for new work and abundant comb surface for ripening nectar.

When the honey flow is slow or when the nectar is thicker when first gathered the work of drawing out foundation, comb-building, and the ripening of nectar may all be done with sufficient rapidity in a single super. Under these conditions the subsequently added supers may be given on top, for unless the bees enter the newly added supers and draw out the foundation uniformly in all the sections, adding the new supers above usually gives better results. When the honey flow is good we go over the supers every three days to add new ones, remove any that may be finished, and arrange the others in the order which we think will cause the bees to finish them most rapidly.

It is already well within the realm of possibility so to manage that all colonies shall be alike as to number, age, and strain of workers at the beginning of the honey flow. If we can also finally learn to control all the evasive and obscure factors affecting colony morale we may begin to realize the long-dreamed-of ideal of every colony yielding as well as the best.



WHEN, in the course of apiarian events, it becomes necessary for one to enlarge his beekeeping business beyond the confines of the "home apiary," he is at once confronted with the serious question of the establishment and management of outyards. The average "one-yard" beekeeper feels himself entirely capable of conducting that one yard, but hesitates to tackle another, seeming to think that it will require a new and perhaps complex system for the management

PROFITABLE OUTYARDS

The Principal Requirements as to Location, Equipment and Management. How to Secure Best Results

By J. M. Buchanan

of outyards. However, there is no good reason why a system that gives good results in one yard will not work equally well in two or more.

When launching out into more profitable beekeeping, the first important consideration is the establishment of out-apiaries. The location is an important factor, on which the success of the venture largely depends. The principal requirements are good pasturage, accessibility, protection from prevailing winds, and water supply. Shade is

convenient but not essential. A windbreak may consist of a hill, a piece of woodland, evergreens, buildings, a board fence, or a bank of earth. The beekeeper should acquaint himself with the nectar-bearing flora of the locality, the time and duration of bloom, etc.

The equipment should include at least two full-depth supers of combs per colony, tho three would be better. Shallow combs may be used, but it will require a correspondingly greater number. It is not considered practical to produce comb honey in out-yards, except in certain favored localities.

A small house may be built at each yard for use when extracting, and for storing empty combs and supplies. Our honey-houses are 10 by 12 feet, and 10 feet high, built of matched boards, such as flooring or heavy ceiling; are bee-tight, and have screened windows and doors. They are covered with a good quality of roofing paper. The cost was about 25 or 30 dollars each. At one end is a bench on which are set the extractor and honey-tank. The extracting outfit, with tank, uncapping-box, cans, etc., is moved from yard to yard as needed.

Having established our yards, we must adopt a system of management which is practically non-swarming, and which eliminates all useless manipulations, thus reducing the work to a minimum. Such a system we have evolved after years of experimenting, and it has given uniform success in our own apiaries. We will suppose that



Honey-house at an out-apiary.

the bees were properly prepared for winter, with plenty of good stores, and **wintered in two stories**. This is an important part of our system. The method and amount of packing will depend on the climate and the locality. Thus prepared, the hives are not disturbed until settled warm weather

At the beginning of the first surplus flow, from locust or clover, we go thru all the colonies, putting the queens down, and being careful to see that there are three or four empty combs in the lower story, and about



One of the out-apiaries, showing a windbreak of cedar trees.

that many, or more, frames of brood in the upper story. We do not take time to find the queens, but run them down by placing over the frames of the upper story a piece of burlap liberally sprinkled with crude carbolic acid. This is allowed to remain for two or three minutes, when the upper story is raised up, and a queen-excluder placed on the lower story. Queenless colonies are broken up. Very strong colonies are given an extra super.

Ten days later another visit is made; and, if we find queen-cells in the upper stories, they are destroyed or used for making increase. We generally make our increase at this time, as three or four frames of ripe brood with adhering bees, from an upper

about over, and the honey well ripened. When removing the honey from the hives, we rid the supers of bees by placing the carbolized cloth over the frames for a minute or two, when nearly all the bees will have gone down. This is about as effective as the bee-escape, and takes far less time. Enough supers for the day's extracting are carried into the honey-house in the morning, and late in the afternoon the empty combs are replaced on the hives to be cleaned up and cared for. The honey is hauled home in five-gallon cans, on a Ford truck.

Before cold weather sets in, we get the bees in shape for winter. There should be a good lot of brood reared in the fall or late summer, as this is a very important factor in



A bank of earth serves as a windbreak for an out-apiary.

story, make an ideal nucleus. This is given a ripe queen-cell from a good colony. At this visit supers of empty combs are given wherever needed. These are placed just above the excluders. The lower stories are not disturbed. Should we find any queens still in the upper stories they are put down.

A visit is made about once a week during the honey flow, and supers given as needed. No time is wasted looking for queen-cells, for a hundred chances to one there won't be any. No complex system of records is kept. At each visit all colonies are left in the best possible condition; but if, for any reason, a colony can not be so treated, a small stone or stick is placed on the hive cover to call attention to it at the next visit.

The supers are left on until the flow is

successful wintering. If there should not be a fall flow of nectar, it may be necessary to resort to stimulative feeding in order to induce brood-rearing. They should have 25 or 30 pounds of sealed honey per colony. More would be better, for, if it is not needed, it will not be wasted.

At the approach of cold weather the extra supers and the excluders are removed, cutting the hives down to two full-depth stories; most of the stores will be in the upper story, where the bees can reach them at any time.

This system of management has given us excellent results, during its use for several years, with the minimum amount of labor, and with less than two per cent of swarming.

Franklin, Tenn.



ANNE LESTER AND DADDY LOWE, BEEKEEPERS



By Grace Allen—Chapter V

ANNE and Daddy Lowe were in the backyard. It was early June. Across great spaces of clover bloom and fragrance came a sound of distant cowbells, from a sun-flooded field a meadow lark arose, singing, and all around was the thrilling wonder of the bees.

"It is almost too beautiful," Anne said once, softly, "It hurts."

"Beauty often hurts," the old man answered. And they went on with their work.

"Here's another super for you," Anne was saying presently to her busy workers; "see if you can fill this one, too. There are only eight combs in it, you see, so you can make them nice and plump."

"Look who's coming, Anne!" Mr. Lowe called. It was Theodore, swinging a little car with reckless speed thru the gate. He was in a blue shirt and overalls.

"Anything wrong?" Mr. Lowe asked quickly. But Anne only gazed at his clothes.

"Why Theodore!" she reproached, with mock solemnity. "I never thought I'd see you like this, all—all this way!"

"You've got one on me, Anne," Theodore answered good-naturedly. Then turning to the old man, "Can you come over and help me, Mr. Lowe?" he asked. "I've got a swarm."

"A swarm?" they echoed together.

"You see I bought a hive of bees a few weeks ago," he began.

Anne laughed. "That's why you asked so many questions about bees last Sunday," she accused. "I thought you were being polite!"

"Guilty," he admitted. "I haven't had time to read a word—too many other things to learn at the same time. And there they are—pouring out of the hive—and I don't know—"

Mr. Lowe was moving swiftly, as one who has met unexpected swarms for many years learns to move.

"You haven't happened to clip your queen, I suppose," he remarked as he set a hive in the car.

"No, but I happened to buy one already clipped—anyhow the man said so."

"Good!" exclaimed Mr. Lowe. "Anne can have your swarm for you."

Theodore shook his head. "It might settle in a high tree, mightn't it?" he worried.

"Oh well," smiled Mr. Lowe, "Anne doesn't mind high trees. Jump in, Anne, go on over and hive Theodore's swarm."

"Oh no!" Anne exclaimed. "I can't!"

"Can't?"

"Well, I mean—why, no, of course not, Daddy Lowe!"

"I just hadn't supposed," began Theodore, in some embarrassment.

"Of course you hadn't supposed," Daddy

Lowe agreed quietly. "But she can. Come on, Anne, I'll finish your hive."

And Anne, quickly tossing one mood aside for another, came, bringing her hive tool and smoker. "All right, Theodore," she laughed, "I'll hive your swarm!"

Down the road towards the Clark farm they sped, while Mrs. Lowe, who had seen them go, came out and smiled at her husband. "It looks like the old story, Father," she said, gently.

"Did you ever see a swarm before?" Anne asked, as they neared Clark's.

"No," he answered, his eyes on the road ahead, "I never saw nor heard such a sight before."

Anne laughed. "And you never heard nor saw such a sound before! I know! We've had two. Isn't it exciting? And beautiful. All the air full of wings."

"It was interesting," the young man admitted, and turned in the Clark gate. He had really been gone only a few minutes, and the dark cluster of bees was hanging quietly on the end of a high branch of a wild cherry tree.

Before Theodore could get round to help her out, Anne had sprung to the ground and started towards the one hive by the fence. There she stooped, walking slowly around, examining the grass closely. "You bring the other hive," she called.

But as he approached, she shooed him back. "Wait," she warned, "or come carefully. You might step on the queen."

"Just where do you think my queen is?" Theodore demanded indignantly.

"Right here!" she exclaimed joyfully.

Theodore smiled reluctantly. "Right here is right," he agreed mysteriously, but was wise enough not to say it aloud. He leaned over Anne, and sure enough, there was the clipped queen bee hopping around in the grass, with a goodly number of her devoted attendants around her.

"Quick, Theodore!" Anne urged. "Set the old hive off to one side. Just anywhere for now. Set the super off first, if it's too heavy."

With his swift young strength he did as she said.

"Now put the new one right in the old place. There, now everything is ready. And only just in time. Look!"

The cluster was breaking, and again the air was filled with bees.

"They're going away! They're going away! You'll lose them!" some one was calling.

Theodore looked inquiringly at Anne. "You won't lose them," she assured him eagerly. "They won't go away without their queen. They have found out she isn't with them, and they're coming back."

Back they came, pouring into the en-

trance. "And that's how beekeepers play a pretty trick on them," Anne explained enthusiastically. "You see they go by exact location, so when they come back they come to the old stand and go into anything that's there. And now—"

Carefully, with slim young fingers she picked up the queen she had been watching, holding her by the wing, and set her down in the entrance where the bees were so steadily marching in. And she ran in with the rest. Taking the queen-excluder off the old hive, Anne put it on the new one and told Theodore to set the super on top and cover it.

"Now!" she exclaimed. "You have a happy swarm, Theodore. They found their queen all safe at home, and somehow, at the same time, that home is changed to just what they wanted when they started out—all empty and roomy and ready for a new start."

"I must say those sheets of beeswax, or whatever you call it—yes, foundation—don't look particularly homelike to yours truly."

"Oh they'll draw that out into comb in a hurry, and in a few days the queen will be laying in it. In the meantime, they'll carry the honey right up into the super. You ought to get some more hives and supers and things right away."

"They're ordered all right, and will probably be here in a day or two. What do we do with this other hive they came out of?"

"Put it wherever you want it to stay," Anne answered.

Theodore placed the old hive in a new location. Then Anne opened it. Lifting out the combs, one after the other, she showed him the queen-cells. "See these queer long cells, Theodore? The books say they look like peanuts. Well, there's a baby queen in each one, waiting to come into her own. When this hive got so crowded that the old queen and part of the workers decided to move out, they made these cells and the queen laid in them. That's how they provide for unbroken royal succession."

She started cutting them out.

"Why ruin their well-made plans?" asked Theodore.

"No use letting so many hatch out. They might swarm again and you don't want that."

"How do you know I don't? I want lots of things I don't get."

"Well you're not allowed to want secondary swarms—the books say you don't—and so does Daddy Lowe."

"Who?" darkly.

"Mr. Lowe. And he comes pretty near knowing," she added, cutting out another cell, and so not seeing Theodore's expression. "He's been keeping bees for nearly fifty years. And he certainly is a dear."

She lifted out another comb. "Here's a

nice, big, good-looking cell," she remarked thoughtfully. "I'm going to leave just this one, and cut out all the rest."

"Is young Lowe a beekeeper too?"

"Jack? They say he doesn't care much for bees." She closed the hive. "Now you have two colonies where this morning you had only one," she said. "That's fine; tho they say you won't get so much honey this way. That's one reason beekeepers try not to let their bees swarm. Daddy Lowe cuts out cells every week or ten days to prevent swarming, but from what I've read maybe I'd do differently. Anyway I'm making increase a way he never has, and I'm as proud as Punch."

"Are there other ways besides this swarming way?"

Anne sighed gustily. "Beekeeping," she announced impressively, "is like what Kipling's Neolithic gentleman said about song writing. Remember?

"There are nine and sixty ways
Of constructing tribal lays,
And every single-one of them is-right."

"But the way I'm doing (I'm trying ten colonies)—well, I raised the brood to a third story last month, leaving one comb of brood with the queen down below the excluder; then a second story of empty combs. The next day I gave each top story a nice sealed cell from a colony that swarmed in spite of us. I propped the back corners of these third stories up on little sticks, so after the queens emerged they could get out for their flights. And now most of them are laying up there just as comfy as can be; and when they've filled their hives with brood, I can set them off and have ten nice new colonies. Tho probably there won't be ten, cause maybe some of them won't work out just right."

"Did you catch your swarm all right?" asked a girlish voice. Anne and Theodore turned. There stood a parasoled vision of dainty young femininity, in cool and frilly white, with a half-blown rose in her hair—the only daughter of the Clark home.

"Yes, thank you," answered Theodore, removing his hat to perform the necessary introduction. "Tho it was really Miss Lester who saved the day—and the swarm."

There followed a few minutes of polite conversation; then Theodore helped Anne into the car and they started back. "Oh Theodore," groaned Anne mischievously, "what a contrast we did present, Miss Katherine Clark and I—I in my work togs and she in her pimpies! But isn't she sweet!"

"Yes," he agreed, apparently reluctantly, "she really is. And she wasn't exactly primmed up, either. She's about like that most of the time."

Anne smiled. Then she talked about her brother the rest of the way home.



BEES VS. SKUNKS

A Nuisance That May Become Very Serious to Owners of Bees Generally

Not until the recent convention of the New York State Association of Beekeepers' Societies, held in Buffalo, was the great and wide-spread damage done to the beekeeping industry by skunks brought to my attention. Strange why an agency so destructive to bee properties as the skunk should receive so little attention, while so many other obstacles and enemies that militate against the beekeeper in scarcely a greater degree should be the subjects of so much discussion. The opinion may be ventured that it is because the beekeeper whose apiary is infested with skunks has regarded his case as an unusual one and therefore of little public interest. Or is it that skunks are rapidly increasing in number and only within the last few years have become a real menace to the beekeeper? I am inclined to the latter view. In a conversation with one of our state inspectors of apiaries recently he advised me that skunks seem to have increased in numbers greatly during the last few years and that more apiaries are infested and greater damage done by them than formerly.

The skunk may justly be regarded as a very serious enemy of the bee, as the discussion of the question at the convention proved. Audible smiles, jokes, and gibes at the expense of this quadruped of odiferous fame gradually gave way to serious discussion as member after member testified to its regular nocturnal visits to their apiaries at certain seasons and the damage done. It developed that one member, Eugene E. Sutton, had killed a number of skunks that had been infesting his apiary, saving the skins of some of them, and had been arrested for alleged violation of the New York State conservation law in that he had so saved such skins. So much interest was shown in the discussion that an effort was made to arrive at the approximate damage from skunks that beekeepers are now sustaining. A list of representative beekeepers was secured, including many of the most prominent and well-known apiarists of New York State, showing the number of colonies of bees owned by each, the number of skunks they had killed in their apiaries, and the estimated damage done in each of such apiaries during the past season. The data thus secured show that 15 apiarists owning 4,913 colonies of bees had actually killed in and about their apiaries 176 skunks and had sustained damage from their depredations estimated at \$2,665. Assuming \$9.00 per colony to be the net average income of the colonies listed, which seems

liberal, we have an average loss to the apiarists of six per cent that is directly traceable to the skunk. The list showed that many of the individual losses were far in excess of the average, and undoubtedly small apiaries in localities badly infested would sustain a greater proportion of damage than would the larger apiaries. If the skins of these 176 skunks had all been saved, they would have to be sold for over \$15.00 each to compensate for the damage sustained by the beekeepers. These figures may be taken as an approximate estimate of what it is costing the beekeepers of New York State in order that skunks be conserved.

That the skunk nuisance is still in its infancy is the opinion of competent observers. It multiplies rapidly and litters of six or more are not uncommon. With its habit of



His skunkship.

burrowing deep in the ground or secreting itself far from reach under buildings and in other retreats, the added protection given it under the conservation laws of different States will inevitable result in a greatly increased number. Then, too, no other animal is better fitted by nature to perpetuate itself than the skunk, for it is dreaded by animals and men alike.

In conversation with numerous beekeepers I find the opinion prevalent that the skunk is a real menace. When we consider that its ravages are mostly on cool nights in early spring and during the fall, the destruction it accomplishes is easily understood. By scratching at the hive front to attract the bees outside the hive it is able, in a short time, to make a meal of bees which, in early spring, are worth two or three dollars a pound, which is rather expensive skunk food. It works persistently, night after night, at the same hives, eventually consuming so many bees as to deplete the colony to the extent that it is incapable of covering and nourishing its brood, often resulting in

FROM THE FIELD OF EXPERIENCE

dwindling to death or becoming so reduced as to be of no value as a surplus honey-producer for the season. In the cool nights of fall the activities of the skunk are again renewed, and frequently colonies are so far depleted of bees as to render it impossible to bring them safely thru the winter. Beekeepers whose apiaries are infested with skunks may attribute a part of their winter losses to their depredations.

The provisions of the conservation law in New York State in reference to skunks are as follows, viz.: "Skunks may be taken either in the day time or at night and in any manner, but they shall not be taken from holes or dens by digging, smoking, or the use of chemicals, and they may be possessed from November tenth to February tenth both inclusive. Skunks which are injuring property or have become a nuisance may be taken at any time in any manner; but the skunk or any part thereof so taken shall not be possessed, bought, sold, or trafficked in."

The skunk's well-earned reputation for injuring property and becoming an intolerable nuisance is recognized in this law by the provision allowing them to be killed "at any time and in any manner" when they do so injure property or become a nuisance. The skunk is the only animal mentioned in this conservation law that for any reason is outside the law's protection.

The skunk is a nuisance *per se*, and I predict it will become increasingly so as long as fostered by conservation. Protecting it benefits a few sportsmen, trappers, and fur dealers; and for this the State, thru its beekeepers, is made to sustain a loss many times the value of the skunks. Conservation, in its broad and accepted sense, means the preservation of that which is valuable. If it costs more in value to conserve an object than that object is worth, then it is plain that the opposite of conservation has been accomplished.

But as long as the law is in force all good citizens will wish to have it respected. Moreover, the surest way to obtain the repeal of an objectionable law is to enforce it. It is to be hoped that the enforcement of this section of the conservation law will speedily create sufficient sentiment against it as to result in its repeal.

Kenmore, N. Y.

Orel L. Herisher.

SWARM PREVENTION

Warning Against the Dependability of Some Highly Recommended Plans

If anybody contemplates trying the so-called "Sheppard plan of swarm prevention," as given on page 39, January Gleanings, my advice would be to try it in a limited way at first. Briefly, this plan is

that of putting the queen with a little unsealed brood in the second story of combs or foundation over a queen-excluder, eight or nine days later tearing down all but one queen-cell below the excluder; and, after the young queen below is mated, removing the old queen; and eight or nine days later destroying the queen-cells above.

A number of years ago I worked out a similar scheme for hatching queens below the excluder while retaining the old queen above. At that time I could see no reason why it would not work out in practice. In fact, I had so much faith in the plan that I tried it with about 50 colonies. In nearly every case the young queen disappeared together with a goodly number of the bees. I have since learned from experience that if a queen-cell is permitted to hatch with a laying queen in the hive, the bees will nearly always swarm if weather and other conditions are not unfavorable. If the old queen is clipped or confined within the hive, the virgin queen goes with the swarm. Likewise, if cells are allowed to hatch above the excluder, the young queens often squeeze thru and lead off a swarm. The owner examining the colony later, finding brood in all stages and the old clipped queen on duty, concludes that there has been no swarming. Here is an illustration:

At an outyard brood had been placed above excluders. Being unavoidably delayed, I arrived a day behind schedule time for removing queen-cells. Soon after reaching the yard, a swarm came out, and a few minutes later a second colony swarmed. In each case the clipped queen was found in front of the hive and caged. In hiving the two swarms three virgin queens were observed to run in with the bees of the first swarm and two with the second. The combs of the two colonies were then carefully examined, and it was found that no queens had emerged from cells below the excluder in either case, but three and two respectively from cells above the excluder. There was no possible chance for these virgins to escape from the parent colony except by passing thru the queen-excluder. I have many times observed swarming under like conditions as probably have hundreds of others, and yet frequently articles appear which seem to imply that it is a safe plan to allow cells to hatch when separated from the laying queen by an excluder.

I agree with Dr. Miller when he says, "Breed from the best and eliminate all queens that fall below the average," but it is a wise beekeeper who can surely determine which is best. With due apologies to my venerable namesake, it certainly is not always the colony which stores the most honey. In the above case, a "let-alone" beekeeper, coming around a week or so later, and finding no evidence of swarming, would

FROM THE FIELD OF EXPERIENCE

have been ready to declare the queen "slow" and a fit subject for decapitation, while an inferior queen because of a greater population and a preponderance of stores would have been permitted to survive and propagate her kind.

An orthodox statement that will bear scrutiny is that a colony with a clipped queen will kill her after one or two attempts at swarming. Clipped queens frequently disappear at swarming time; but, in my opinion, it is usually because the bees swarm unobserved and the queen fails to find her way back. It must be remembered that a queen with wings clipped on one side only will sometimes get as far as two or three rods from the hive.

While in the critical mood permit me to have one little poke at friend Holtermann, regarding his "Best and Cheapest Way to Requeen," told in June Gleanings, last year. Quoting A. D. Hall, Watertown, N. Y., he says: "If he wanted a queen from the colony, he would go to the colony, kill the queen, and remove every cell but one of the best. In that way he overcame the swarming impulse and saved time and manipulation." I hope Friend H. will forgive me, but I rise to remark that no better scheme could be devised to cause a colony to swarm. I know, for I tried it many times in my days of acquiring "experience." My notion was to destroy the inferior queen and cells and to give a cell from the best stock. At least nine times in ten, may I not say ninety-nine times in a hundred, a new batch of queen-cells would be started and the bees would swarm either at the time of the queen's mating or when the cells were being capped. If any failed in their duty, they swarmed when the new batch of queens emerged, some of them several times in order to be sure that their program was properly carried out.

"Best Swarm-control Plan," by Iona Fowls, June Gleanings, 1918. I have used this plan the last eight or ten years with several hundred colonies, and have for the most part found it very satisfactory. However, about five to fifteen per cent of the colonies so treated will start queen-cells on the one frame of brood below the excluder, depending on the season. Also, if the clover flow continues more than three weeks, as in 1918, the queen again fills the brood-chamber and swarming is apt to occur; likewise, if there is an August flow. To manipulate several hundred colonies in July, with 150 pounds of honey in the supers and a "barrelful" of bees, is something of a job, and it is here that some of us fall down. If cells are started at this time, it is preferable to remove all brood, using it to build up nuclei for the fall flow.

For comb honey there is probably nothing better than the "shook swarm" method,

but don't make the mistake of leaving part of the brood. Remove **every** cell and use mostly foundation below.

Valparaiso, Ind.

E. S. Miller.

[The percentage mentioned in the next-to-the-last paragraph may be cut down considerably. When we first used the swarm-control plan given in the June, 1918, Gleanings we had an experience similar to Mr. Miller's—some colonies building queen-cells in the lower story. We noticed many young bees (nurse bees and cell-builders) left in the hive below at the time of manipulation, and these we came to believe the true cause of the trouble. Since then we have taken pains to get these bees out of the lower and into the upper story where they may build queen-cells to their hearts' content. Below we have only field bees that have no inclination to start cells. This we have found a much safer arrangement.—Editor.]



PREVENTION OF SWARMING

This Beekeeper Says He Has Not Seen a Swarm in Two Years

The proper time to manipulate a colony to head off swarming is before the flow starts. In doing this I proceed as follows: By May 20, or as near that as possible, I equalize brood according to Dr. Miller's plan, so that each colony will have at least five brood. By a "brood" I mean a comb at least two-thirds full of brood.

One thing that will encourage swarming is the inequality of the colonies in the amount of brood they have early in the season. Suppose one of the best ones has six or seven brood by May 20, and they are not reduced. I would almost guarantee they would swarm, perhaps before the flow. In other words they would grow to storing strength altogether too soon. Now, some of my hives are eight-frame and some twelve-frame. We will take the twelve-frame. If they have plenty of stores, and honey is coming in, they are going to increase right along and have six brood. In a few days there will be brood in two more. I immediately give another story of combs. They are, as a rule, safe now until the flow starts—about June 20. (In the case of the eight-frame hives it may be necessary to give three stories before the 20th.) At this time we may have from eight to twelve brood. We now arrange for the storing of the crop. I first take nearly all the brood from the brood-chamber except two or three combs which contain the least brood, filling the rest of the brood-chamber out with black empty combs, put on the excluder, on top of this a body of empty combs, and on top of this the body containing all the rest of the brood. In a few days, if the weather

FROM THE FIELD OF EXPERIENCE

is favorable and honey is coming in with a rush, I look at the story of empty combs. If the bees have made a start in these combs the hive is closed up as it was, except that another body of empty combs is added on top and thruout the season. As soon as I see any start in storing in this top story another empty is added.

Never at any time do I take off the stories and examine the brood-chamber for indications of swarming. It has never been necessary in my experience.

With the above plan (which has been mentioned many times in Gleanings) I have had a hundred colonies in the home yard with never a swarm, and I do not believe there was one at the other yard. In two years I have not seen a swarm—only the one or two runaways that usually come each year. It may be there will come a year when they will swarm in spite of this management; but I am not going to believe it until I see it.

Geo. Shiber.

Randolph, N. Y.



ANOTHER SWARM PREVENTION

Brood-Chamber Is Placed Over Shallow Frames Having Foundation Starters

Having used S. Simmins's method for a number of years, I can absolutely affirm that, unless some ridiculous manipulation has been made, the bees positively cannot swarm, and I have always found that from hives arranged in this way the honey produced is always far in excess of that obtained by the more usual methods of supering.

In this swarm prevention plan to which I refer, the brood-chamber is raised and under it is placed a super of shallow frames, fitted only with $\frac{1}{4}$ -inch starters of foundation.

Frames from which the combs have been cut will also answer or even top-bars only, provided a trace of the old comb is left adhering to the under side. Above the brood-chamber may be used a queen-excluder and then the extracted honey supers of drawn comb piled up in greater or less numbers as the flow of honey requires.

The whole principle of the arrangement depends upon the fact (I think generally acknowledged) that bees will not swarm from a brood-nest of uncompleted combs. At the same time proper and ample ventilation, without draft, is provided under the cluster.

Now, if the beekeeper for any reason neglects to give sufficient super room, the bees, instead of swarming, merely bulge down into the lower compartment and work out the combs (and in my experience store honey therein—no brood). If, on the other hand, the supers are properly attended to,

no self-respecting colony ever draws out the under combs at all, but merely uses the space provided as a sort of entrance hall, wherein to sit and meditate on wet days or at other times when nothing is doing.

By this method, it will be noted that the brood-nest is not disorganized, nor is it necessary to give the queen a fresh start by separating her and her nursery by one or more tiers of super combs. Manipulation, in fact, is reduced to a minimum and moreover the bees work straight ahead in the supers, in the same direction in which they began, without being required to fill in unnatural "vacuous" spaces left in upper stories by the hatching out of misplaced brood.

Strictly speaking, this method does not "prevent swarming," it rather prevents the desire to swarm, which are two entirely different things; the former necessarily being a more or less harsh and unnatural proceeding, the latter more nearly conforming to nature.

Bees seldom or never swarm from the huge "let-alone" hives, I believe. The same thing may be said of wild bees living in tree trunks and between house walls—provided always that the space at their command is unrestricted. Why? Because their combs are never quite complete or at least are always capable of further extension to meet the needs of the swollen population. Similarly, in the hive arrangement just described, the bees are led to believe that their combs are still capable of extension so that the desire for swarming never enters into their calculations.

The one obvious drawback to this method is that it more or less precludes the possibility of mid-season increase. But, as most agree, the proper time for increase is before or immediately after the honey flow, this difficulty cannot be allowed to have much weight.

Now as to actual results. I live in a locality where beekeepers consider they have done well if their colonies average 40 to 50 pounds in a season; but since adopting the above arrangements I consider it a poor season when my hives yield me less than an average of 150 pounds of extracted honey in a season.

The above-described method is only a variation and enlargement of Dr. Miller's two-inch floor-boards with a false bottom of slatted boards. It is indeed difficult to find anything new under the sun—even immediately under it.

C. L. N. Pearson.

Shalbourne, England.

[Altho we would not expect three times as much honey, we believe the plan worth investigating and intend trying it out on a small scale ourselves this summer.—Editor.]

ON page 290 the types make Mrs. Demuth say that there is less tendency to late swarming "if the bees are compelled to build new combs in the brood-chamber from starters only." I can hardly believe she would favor anything less than full sheets of foundation, for fear of too much drone-comb. [Those are Mrs. Demuth's words. The types are innocent this time.—Editor.]

* * *

Staney Puerden, I'm in sympathy with you when you speak so vehemently of "man's refined, demineralized, devitalized sugar"; but don't be too sure that a "natural apple" may not equal a Baldwin. The Baldwin is nothing but a "natural apple" selected out of many thousands of natural or seedling apples, and any day another seedling may turn up still better than a Baldwin.

* * *

In a mention of the Miller plan of getting queen-cells, page 318, occurs this: "Remove a comb from the hive of the best breeder and replace with this prepared frame." Some one who tries that will be disgusted to find that the chances are that the frame will be filled with drone-comb and honey. The remedy is to have the best breeder in a nucleus.

* * *

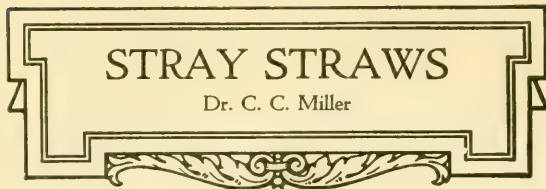
Interesting is that statement of L. L. Andrews, page 309, May Gleanings, that 100 colonies of bees used 20 gallons of water in a day. That seems an enormous amount, being a trifle more than 1½ pints for each colony. One wonders just a little whether they would keep that up day after day, or whether, having been hard up for water, they would take an unusual amount the first day, and then slack up afterward.

* * *

Grace Allen, you knew mice had been in your hives because you found the remains of one there. You might have had another evidence. Next time you suspect mice, examine the dead bees. Each one will have a round hole on the upper part of its thorax, where I suppose a mouse had bitten or licked out the contents of the thorax. If you close the entrance of a hive with wirecloth having three meshes to the inch, it will allow free passage for bees, but not for mice.

* * *

Something out of whack on page 299. The text seems to show the cold arrangement of combs, but the cut shows the warm arrangement. The text says the entrance of the nucleus "will be at the end of the hive opposite the body entrance," but the cut shows both entrances at the same end. [The legend under the cut stated that in ad-



dition to the arrangement shown, a piece of tin or zinc covers all but a few inches on the right side of the excluder. The double dotted line and lower

arrow were intended to indicate an entrance at the opposite end of the hive, but apparently do not give that impression.—Editor.]

* * *

On page 293 it is advised to strain bees thru a queen-excluder, and the heading says it "saves time and eye-strain, and works without fail." It's a good thing in a stubborn case where you want to find the queen "right now," but as to saving time in ordinary cases—not "in this locality." In a usual case of finding 50 or 100 queens, it will be done in one-third of the time without the strainer. [Yes, but your bees are not of the flighty, scary, unfindable kind.—Editor.]

* * *

Two marvels on page 316: D. M. MacDonald gives as one the lack of delight in labor of any kind in a worker deprived of antennæ; Iona Fowls gives as another the lack of delight in much of anything of a human being deprived of a leg. Play fair, Iona, play fair. The cases are not parallel. My good friend, the Scotch schoolmaster, may come back at you with another marvel: a queen deprived of a leg goes right on taking interest in her work, just as if no leg had been lost, altho the loss of the leg causes likely as much pain as the loss of the antennæ. Your human loses interest because of the severe pain, and the interest will come back when the pain is over. The interest of the bee is lost not because of pain (for then the loss of a leg should cause the same loss of interest) and that interest will never return. [Yes, we will be fair. We admit that we, together with Mr. MacDonald and Dr. Miller and various scientists, that have been discussing the subject, know but precious little about the sense organs of bees. Won't the others please admit the same?—Editor.]

* * *

On page 322, occurs a question which is, in substance, "How can a queen become a drone-layer if her spermatheca contains more spermatozoa than the number of eggs she lays in her lifetime?" And the answer is in substance, "She can't." But we all know she does, and only too often. It may be said—and rightly—that that "She can't" means that she cannot become a drone-layer thru the exhaustion of the spermatozoa. That still leaves the question, "If not thru such exhaustion, then how?" No other way is suggested, and I'm sure I don't know of any. Moreover, begging Miss Fowls' pardon, I may quote Cheshire as saying that the supply of spermatozoa does ac-

tually become exhausted, or practically so. Speaking of drone-laying queens, he says: "Many of these ancient dames—discarded because they no longer yielded workers, or only a few, amidst many drones, and these produced in worker-cells—have been sent to me for dissection, and I have invariably found the spermatheca quite denuded of its spermatozoa, or only containing such a miserable residue as to clearly show that the eggs could, at the best, be but occasionally fertilized." (Bees and Beekeeping, Vol. I, page 227.) As to the **how** of it, I may be allowed to suggest: Nature is lavish in her provisions for safety of fertilization: where a single grain of pollen is needed on an apple tree, hundreds are provided; for every drone needed a thousand are born, and the only wonder is that she is not more lavish in the matter of spermatozoa, providing less than a dozen for every one really needed. (Cheshire says "a prolific queen will lay, during her life, 1,500,000 eggs," and the spermatozoa "are, probably, not usually more than 4,000,000 in number." (That averages less than three spermatozoa for each egg.) Well, altho only a single spermatozoon may enter an egg, analogy would teach that for safety two or more extra ones are extruded, and so it is not so hard to see that even with 4,000,000 present the supply may become exhausted, making the queen a drone-layer. [Of course, anyone who has ever worked with bees to any extent knows that good queens sometimes become drone-layers; but we had supposed this was caused by the queen receiving too few spermatozoa or by the queen becoming so worn out that it was physically impossible to fertilize the eggs. The suggestion made by Dr. Miller, is, however, doubtless correct. We find it also given by Cheshire, Dr. Phillips and others. According to Breslaw, the spermatozoa are extruded in bundles of about one hundred each, upon the eggs as they pass from the vagina.—Editor.]

* * *

B. F. Kindig, an old adage says, "Death loves a shining mark." So do I. So I'm glad to have you for a mark while I take a whack at an error that prevails even among our best beekeepers. You say, page 309, "Such beekeepers could without great trouble maintain a drone-rearing colony headed by their best queen. The next best queen could be used for queen-rearing." You do well to emphasize the importance of drones, but have fallen into the error I speak of by assuming that the best queen will rear the best drones. I am hardly in a position to throw stones at others, for I am only a comparatively recent convert to the truth, and for many years made it a practice to encourage drone-rearing in a few of the best colonies and to suppress them in all others. When speaking of a best queen, I assume we mean the queen whose workers do the best work.

A worker gets her characteristics from her mother and also from the drone with

which her mother mated. Not so with the drone. He inherits only thru his mother, and is not one whit affected by the drone with which she mated. In fact he would be precisely the drone he is if his mother had not mated at all. Just as you say, "They inherit all of their characteristics from their mothers." He has no father but is the son of his grandfather. We will not go far wrong if we keep in mind that thru his mother the drone inherits qualities from his mother's mother, plus qualities from the drone with which his mother's mother mated. In other words, for his status the drone harks back to his maternal grandmother after she had mated. In a few words, the best drone is the drone with the best grandmother.

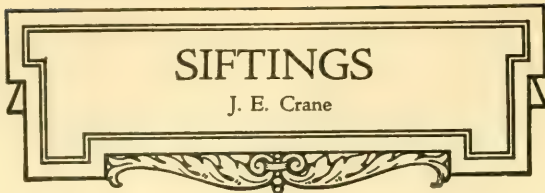
Suppose two virgin sisters, A and B, just alike in every respect. A meets with the best drone ever, and B with the worst ever. A will rear good workers, and we shall call her a good queen. B will rear poor workers, and we shall call her a poor queen. Yet the drones from the poor queen will be just as good as those from the good queen, **because they have the same grandmother.**

You say rear drones from the best queen and queens from the next best. That would not give you quite the best queens, and it might not give you the best drones. Here's what might be. C, the best queen, as a virgin, was of stock not quite so good as D; but she met a drone so much better than the one D met, that as a laying queen she is the best in the apiary. Yet C's drones are not as good as D's, because D's have the better grandmother.

Well, if we are not to rear drones from the best queen, what are we to do about drones? **Don't do anything.** Just rear queens from the best queens and let the drones take care of themselves. You will have some poor queens, for some of your queens will meet scrub drones from outside. But if you keep rearing queens from the best there will be none but superior drones in the apiary because they **all have superior grandmothers.**

To those who have trouble because of predominance of black blood around them you say, "Let me suggest the rearing of such an abundance of first-class drones that young queens of the territory gradually may become Italianized." That will not be easy if you rear drones only from your best queen; but with my way it will be easy. And please keep in mind that with the way I advise **the poorest queen in the apiary will have just as good drones as the best**, and all on account of the grandmother business. [These remarks are certainly of great value and we are very glad to have Dr. Miller explain what he means by a "best queen." Now, if Mr. Kindig would also give us his definition, perhaps we would find little disagreement after all. We wonder, however, if it would not be a little more accurate for these paragraphs to end with the word "grandparents" rather than "grandmother?"—Editor.]

WE are indebted to E. R. Root, page 284, May Gleanings, for explaining "Those Confusing Symptoms" of European foul brood. I have to confess that after years of inspection work I find some cases that we do not feel at all sure as to which kind it is. This "new light" will be helpful.



"I never knew any person to go into the beekeeping business purely for what he could get out of it that made a success of it," says Major Shallard, page 321. I believe that rule holds good in this country as well as in New South Wales.

That article on pages 224 and 225 by B. F. Kindig gives us a new idea of the Northern Peninsula of Michigan. I had supposed it on the outskirts of civilization or even beyond it, but he makes it a most decidedly interesting and fascinating section to a beekeeper.

It is to be hoped that every young beekeeper will most carefully study that symposium of noted beekeepers, commencing on page 215, on "Early Spring Management." There is money in it. On no one thing does profit or loss more depend than on spring management.

Directions for moving bees on page 325 are all right if you have the time; but it is much less trouble to move them at once to where you want them. Then place a broad board in front of the entrance and after a few days remove it. We have little trouble when they are so treated.

We are told on page 319 that a Mr. Warren of Nevada, who owns 1,000 colonies of bees and raises alfalfa seed, produces nearly four times as much seed to the acre as another alfalfa seed-grower who keeps no bees; and yet we have been told repeatedly that honeybees are unable to fertilize the alfalfa blossoms. A mistake somewhere.

Necessity is said to be the mother of invention; and that improvised queen-sieve made by tacking an excluder to the bottom of a super, as described by Geo. A. Brill, page 293, will answer the purpose very well and prove of great value when we have forgotten to take anything with us to an out-yard for this kind of work. I have used it.

The discussion of the large and the small brood-chambers goes merrily on. So far as I can see, a two-story 8-frame Langstroth hive is of almost the same capacity as a 10-frame Dadant Jumbo hive. Each has some advan-

tages over the other, it seems evident. If one has an eight-frame Langstroth, it is easily made into a Jumbo by adding another story. If one has a Jumbo

he can have a smaller hive by using division-boards or dummies. From October till May an eight-frame Langstroth seems preferable to a larger one. If a larger hive is wanted during the summer, we can add as many stories as we like.

Edwin O. Gunn says, page 321, that bees will build their combs down to the bottom-bars better when built out above the brood-chamber. There may be something in it, altho, as a rule, I do not find such combs built down to the bottom-bar. However, there is no better place to have combs of foundation drawn out than over the brood-chamber.

Grace Allen in reporting the address of Prof. Jaeger at the Chicago convention speaks of the abundance of honey gathered from the Balkan mountains, chief among them being from wild thyme. This plant has come in some places in southwestern Vermont, enough to make most excellent pasture for bees during August, and may prove of considerable importance in the future.

It was with more than usual interest that I read Mrs. Puerden's description, on page 303, of "Cream of Honey." It looks as tho there might be in it a good deal of value to beekeepers. Granulated honey is often too hard to spread on bread; and liquid honey unless spread very thin (thinner than I like) will run, and, before we know it, is on our fingers. Oh, dear! then we wish there was no honey. Now if this Cream of Honey will remain creamy, it is something to be thankful for; besides it will make an opening or a market for a large amount of our extracted honey that now depresses the market. Cream of Honey, or granulated honey, is of milder flavor than before the change takes place; and, as a result, suits many persons who do not care for liquid honey. My better half recently carried some real granulated honey to a tubercular invalid across the way, and he was greatly pleased with it. "Never heard of such a thing before," said he, and his wife came over to buy some of that solid honey to send down to the hospital. There seems to be something needed to make the use of honey more popular or common. It seems to be about the only food that is going down in price at the present time. With butter selling at 75 cents a pound in our larger towns, it seems queer that extracted honey is quoted at from 16 to 20 cents wholesale. It certainly looks as tho the great mass of people are not informed as to its value.

IF a modern Robinson Crusoe should find the advertising pages of a current number of any household magazine on the beach of his private island estate, he would not need the reasoning powers of a Sherlock Holmes to deduce the fact that American housekeepers have a problem to solve. To prove my point, let me make just a few quotations from the advertising pages of a recent household publication:

"Does a servant's work. It is a veritable servant in the kitchen."

"A dependable servant."

"In the house that has my cooker there is no servant problem."

"A servant at three cents an hour."

"It serves your home, saves your time."

"It is the housekeeper's aid."

"Your laundry problem completely solved."

"Makes ironing a pleasure and saves your time."

"Cleans your whole house thoroly clean."

"Without scrubbing, without scouring, without any of the old, laborious methods."

"Does in a couple of hours the work that used to take the best part of a day."

The above quotations were in most cases taken from full page advertisements with elaborate illustrations of the labor-saving devices described.

In the same magazine are advertised attractively illustrated prepared foods. There are biscuits and cakes in packages, ready to serve breakfast foods, self-rising pancake flours, dried fruits and vegetables, combinations of dried vegetables for soups, canned meats, vegetables and soups, canned, condensed soups, desserts requiring a minimum of time in preparation, condensed, evaporated and even dried and powdered milk, especially manufactured pastry flours and wonderful baking powders. Really I haven't mentioned half the largely advertised foods.

With many food advertisements there are published recipes accompanied by most appetizing-looking illustrations and the housekeeper is often invited to send for a free book of recipes.

In cleaning and straightening some shelves a few days ago I came upon an old number of the same magazine from which I made the above quotations. It was of the year 1902, and it was interesting to note the contrast between its advertising pages and those of the current number. Seventeen years ago advertising pages were not particularly attractive. Very few household labor-saving devices were advertised and almost no foods. Apparently the difficulty of obtaining competent household help was not nearly as great then as now, altho I well

OUR FOOD PAGE

Stancy Puerden

remember we spoke of it as a problem even then.

But it is not alone in the advertising pages that we find attempts at a solution of the problem of help in the home.

There are many fine articles in the reading pages, interesting, inspiring, and generally practical. But occasionally articles appear which I cannot help suspecting are written by men, by women who have gained their knowledge of cooking and kitchen work mostly at a desk, or by women who have lived all their lives in a large eastern city and cannot comprehend that the majority of their readers live amid conditions entirely different with altogether different problems to solve.

One writer tells us that in the future we must depend upon the eight-hour servant who lives outside the home, and if we cannot afford her eight hours a day at the present high wages (I almost called it salary) we can have her for a stated number of hours and allow her to work in some other home for the remainder of the time. That would be quite ideal. I once had an opportunity to try the plan and liked it very much on account of the greater privacy of the family life. But in the average small town I believe it is fully as difficult to secure the eight-hour assistant as one who lives in the house, while on the farm it is practically impossible, and who needs help more than the farmer's wife?

Another writer informs us that the private house of the future will have no kitchen, that instead of buying the raw food it will all be cooked and delivered at our doors. This community kitchen plan has been tried with more or less success in a number of places, and its promoters are most enthusiastic over it. However, so far I believe it has never been carried out except in large cities or suburbs where wealthy people live. To me it sounds extremely like boarding-house fare in the home, and I cannot imagine your children or mine growing enthusiastic over it. When that big college boy comes home for a week end, would it seem quite like home to him if he couldn't rummage in a cupboard stocked with his favorite dishes, home-prepared?

A recent interesting lecturer, a man, made the assertion that the keynote of the future would be co-operation instead of competition, that the movement would extend even into the homes. He agreed with the last-mentioned writer that all cooking would be done in central kitchens, just as our baking and washing are done in central bakeries and laundries. I wanted to interview his wife and find out if the bakeries and laundries really relieve her of all baking and washing. I imagine with the aid of her gas oven she produces sundry toothsome dainties

which that lecturer enjoys, and any woman can guess that at least her two little girls' dainty dresses are surreptitiously "done up" at home. Also that lecturer has been entertained in our home and I can testify that his appetite for home-baked goods is very good indeed. By the way, did you ever know a man who did not appreciate bread of home manufacture?

One writer goes so far as to predict that in the future, I don't know how distant, woman's work will be no more connected with the home than that of man, that she will specialize on whatever she likes to do after her children are beyond babyhood and can be left to the care of others, just as if children did not need a mother all thru their youth. That scheme sounds dismal to me. I happen to like my present job. No, Mr. or Mrs. Would-be-solver-of-the-help-problem, what we women want is not emancipation from all housework, but some of us would like shorter hours and more freedom to enjoy life out of doors. Also the young expectant mother should be relieved of worry concerning help in her time of need.

Now that I have expressed what is on my mind thus freely, may I go a step further and say that I wish some of these writers would stop talking about the drudgery of housework. Show me the worth-while work that has no drudgery connected with it. This talk of the drudgery of housekeeping is enough to make any girl think she dislikes housework.

As to cooking, with the present resources for cooked foods afforded by the average country town, if we housekeepers are to feed our families well and wisely I believe we should still prepare the greater part of the food in the home kitchen.

THE May number of the Ladies' Home Journal devotes a whole page to telling about the food value of yeast, and the substance of it is that it contains the vitamin "water soluble B," the kind which is believed to be in honey. McCollum of Johns Hopkins University, the man who has conducted such long and exhaustive series of experiments with reference to the class of vitamins called "fat soluble A" is inclined to minimize the necessity for "water soluble B" for the reason that it is found in nearly all foods in the natural state. He is the man who named the foods rich in "fat soluble A" the protective foods. These foods are milk and eggs and the leafy vegetables. "Fat soluble A" is also sometimes known as the growth vitamin, altho McCollum apparently does not approve of the word vitamin.

But the writer of the article on yeast, Philip B. Hawk, Ph. D., Professor of Physiological Chemistry of the Jefferson Medical College, Phila., tells of a series of experiments proving that the addition of yeast to the diet of white rats produced remarkable results in promoting growth, and that

without the yeast with its "water soluble B" the rats would not grow altho the diet was otherwise complete even including the "fat soluble A."

When learned scientists do not agree what shall we poor laymen believe? At least we beekeepers can rejoice that new research is demonstrating the importance of the vitamin contained in honey.

In order to use yeast I am starting the recipes by giving a roll recipe. It makes very good rolls, and by omitting all the shortening but 1 tablespoon it will make good loaf bread, two small loaves.

The reason the recipe for butterscotch pie is repeated is to correct it. I sent it to the printers last month after seeing and correcting the rest of the copy. The patient proofreader assures me that the sugar was in the first proof, but somehow it was afterward lost and no one can account for it. It looks to me as if the devil must have taken it, I mean, of course the printer's devil, or just possibly a beekeeping editor censored out that brown sugar because it wasn't honey.

ROLL RECIPE.

1 cake compressed yeast	4 tablespoons melted
1 cup milk, scalded	shortening
1 cup warm water	3 pints sifted flour
	1 teaspoon salt

Soak the yeast cake about half an hour in $\frac{1}{2}$ cup of the water, lukewarm, and then add to the milk and the other half cup of the water, which should be cooled to lukewarm. Add the shortening and $\frac{1}{2}$ the flour (3 cups) and beat until perfectly smooth. Cover and let rise in a warm place until light, which should be in about one hour. Then add the remainder of the flour or enough to make a dough and the salt and knead well. Be very careful to keep the dough warm at every stage of the process. When kneaded until smooth and elastic, place in an oiled bowl, cover and let rise in a warm place until it has doubled in bulk, about $1\frac{1}{2}$ hours. Turn out on oiled board, knead lightly, and divide the dough in two equal parts. Use half for Parkerhouse rolls by rolling out to $\frac{1}{2}$ inch in thickness, cut with a biscuit cutter, brush with melted butter, crease with a knife thru the center and fold over. Place in well-oiled shallow pans about one inch apart and set to rise until light, about $\frac{3}{4}$ hour.

Use the other half of the dough for pecan rolls with the following ingredients:

Bread dough	$\frac{1}{4}$ cup butter
About $\frac{3}{4}$ cup honey	Cinnamon to taste
	$\frac{3}{4}$ cup pecan meats

Roll this dough about $\frac{1}{3}$ inch thick, spread with softened butter, then with honey and dot thickly with the pecan meats which should be halves if possible, sprinkle with cinnamon, roll up and cut into sections about $1\frac{1}{2}$ inches thick. Place cut side down about half an inch apart in well-oiled, shallow pans, dip the honey and butter, which has oozed out in cutting, over them and set to rise, which should take about an hour.

(Continued on page 400.)

SWARMS —
 swarms —
 swarms. Still
 more swarms.
 This is surely
 "a swarming
 season." From
 all around us
 comes the report,
 "Unusually

heavy swarming." Not for years has there been in this section the tendency to such heavy or such early swarming. It really isn't any particularly difficult problem with us usually. Now, with white clover just coming into bloom (May 2), bees have been swarming, or trying to, for a month. Large hives; of themselves, will not always prevent it. Last month, speaking of big brood-chambers in this department, I said, "There is plenty of room for brood-rearing as well as supplies." Well this year it seems there wasn't. Apiaries where there are very few colonies in single brood-chambers have had real swarming problems this season. Occasionally the queen has not entered the second story (usually the lower) when queen-cups were started in the first. Sometimes they swarmed with plenty of room in both the double brood-chamber and a super, tho usually that was when the extra room had been given after the first symptoms had developed — preventive measures that did not prevent. It seems as tho there must be some sound reason for the increased general tendency. It sounds illogical and superficial to say, "Well, it's just a swarming year."

In the big majority of cases here there was such a generous supply of stores on hand and such vigorous laying, that the two stories were really filled early and a seriously crowded condition actually existed. Evidently three important factors, each one distinctly favorable, combined to bring about these results; the heavy fall flow, the mild winter, the early spring.

One thing is sure. If colonies are booming in spring, and there come several days of bad weather right during a good nectar flow, and then that bad weather breaks into fine, warm, bright days, the beekeeper better be on his job. There will be swarms.

The next time I ask anyone whether he keeps bees for pleasure or profit, I am going to add, "Or for discipline?" Certainly your self-control, your serenity, your patience, and either your philosophy or religion, whichever you have, and both if you can claim the double blessing, do get most thoroly tested and developed at times. We have just passed with varying degrees of equanimity thru such a period. Black locust came into blossom so early, so beautifully, so generously; and promptly the weather-man began to pull out his stops and work his pedals, until he had produced the weirdest weather effects imaginable—rain, frost, wind, more rain, more frost, more wind, cold and rain and wind all together. And

Beekeeping as a Side Line

Grace Allen

thru dark dismal day after dark dismal day the bees were steadily in the hives and the time of locust bloom passing by. (Then when it cleared for a

few hours, they swarmed!) "It is costing me a hundred dollars a day," one beekeeper announced gloomily. Now it is warm and bright. And now the locust is practically gone. But beekeepers are a forward-looking people. And white clover is coming into bloom.

It is these things, moreover, that test the skill of the producer. Anyone can get honey when the conditions are ideal; the aim must be to learn how to do it when conditions are against us. There is generally ample opportunity for practice.

(Will E. McC. and M.-A.-O. kindly skip this paragraph? Thanks.) In accordance with all advice about packing, we left the bees in the quadruple winter case until late in the spring, or at least until we found the unpacked bees getting dangerously crowded. Then off came the top and sides of the big case, the packing was put away, and the four colonies examined. They were no better and no worse than the others. They really couldn't be much better, tho, and be contained within the boundaries of the hives. They would probably have classified; one fair, one strong, and two very strong. And that about represented the yard as a whole, except a few weak ones—especially the four or five in a row that had had mouse complications. (We assumed, by the way, these particular colonies were weak because of the mice getting in, but somebody tells us the mice got in because they were weak. That is true of moths that do their damage in summer, but is it true of mice that do their damage in winter?)

So again we feel discouraged about packing bees. To be sure, this is only the second time with the big case, and it was a mild open winter, leaning as far towards extreme mildness as last winter did towards extreme severity. Maybe the packing cases operate more advantageously in just ordinary winters; so maybe we'll try it again. I say maybe, because I have to have help with this job, both spring and fall, and the man I most naturally depend on is a trifle out of sympathy with the packing system. He might succeed in dissuading me.

Recently I heard a side-line beekeeper complain that one certainly got conflicting ideas of the way to handle bees by watching different beekeepers. The two being especially contrasted did almost everything differently. One worked slowly and gently, the other ruthlessly and fast. One used little smoke, the other a great deal. One disturbed the bees very slightly, while the other shook them off the combs. And one, I

might add, had under 50 colonies and the other 250. Which, queried the puzzled one, was the one to copy?

Whichever you prefer, was my answer. For side liners can make a choice. Commercial beekeepers may feel they can not afford the slower quieter method, being compelled to be as swift and expeditious as possible. If their bees get rough—very well then, they get rough. Which disposes of that point. If the work is less pleasant—let it be less pleasant. Which disposes of that point. If it is more tiring—it is simply more tiring. Results are what they are after, and they necessarily use whatever method will produce the best results, measured in dollars and cents.

The side liner, on the other hand, need not work after this fashion unless he prefers. He may so prefer, for he may wish to increase his bees to the largest number that he can handle during the time at his disposal. So he, too, may use the slapdash system with his bees and apply the dollar measuring stick to his results. And still be a perfectly proper side liner. Or he may—and I fancy most of the genus Side Liner will—prefer the quieter method that lets him smoke his bees very little, lift out his combs gently, and find his work such real enjoyment that it passes out of the category of work into that of leisurely delight. It will take more time per colony—but that may be an argument in its favor! Where every minute holds 60 seconds of pleasure, why reduce the minutes? Besides, one is learning and observing during these slow processes, gaining an intimate personal knowledge of the ways of the bees.

So it depends on the results one is after how one should work. Moreover, one isn't of necessity under the compulsion of doing it always the same way. Some glowing day of blue skies and birdsong and uninterrupted hours, one may choose to turn his work into a long slow delicious unforgettable delight; and some other day, with other affairs pressing, he may be ambitious to see how efficiently and quickly he can accomplish whatever needs doing. Many a beginner has started by the slow method, and after a few seasons passed on into swifter ones, which from a practical point of view is a perfectly logical procedure.

For beginners may well err, if err they must, on the deliberate side of the question. Therein lies greater safety for the inexperienced. Later, will come the quicker more businesslike handling, and short cuts will be discovered. For instance, the beginner examining for brood, goes clear across the hive, frame by frame. Then gradually the solidarity of the brood-nest becomes a fact to him; instead of just something he has read of, it is a part of his own experience. So some day when he finds brood in the second comb from one side, he will look quickly at the opposite side, and from the location of the two combs that mark the sides of the brood-nest, he will decide on the number of

combs of brood without looking at each one. He will tip up his hives to look for queen-cells from below. He will relentlessly shake the bees from the combs when it suits his purpose. And in that way his work will be done more quickly—and his bees will be crosser.

Yet when people talk about doing 75 colonies a day, they keep my imagination stammering, trying to keep up with them.

* * *

If you are keeping book accounts of your little side-line venture, you would like to have your records such that at a glance you can tell from year to year what your crops have been. The simplest way is for the sum total of your cash sales to represent your full crop. If you use a considerable amount of honey for your table, and perhaps to give away, your sum total of sales does not represent the full crop. Some further notation is required of the amount retained for family consumption.

I have known side-line beekeepers and chicken-raisers who have actually paid cash for all they put on their own tables, so as to keep the little business venture independent and with all records accurate. (Usually in this case they pay a wholesale price for the honey and eggs, just as a merchant will do for the things his family buys from his store.) But some people object to paying for what is raised right there on the place. In that case, if you would still like to have the sum total of sales represent the entire crop, you can regard the honey reserved for family use as your wages, entering it among your cash sales like any other sale. Then make an entry for the same amount among your disbursements, charging it to labor. This in no way alters the cash balance, but it does make your sales sheet include your entire crop. And it is honest with yourself, too, and with the bees. It's not juggling figures, either. It is as tho you were paid for your labor, and in turn you paid for the honey used. The amount of honey consumed at home is negligible in the case of a big producer, but is a sizable per cent of the backlotter's crop.

* * *

JUNE.

June, you are mine
With your shimmer and shine!
Your radiant gleaming
And delicate dreaming
Have run thru my veins like Arcadian
wine!

June, you are mine!
Roses and bees
And the sun on the trees—
These are the part of you,
Out of the heart of you,
Open old doors with mysterious keys—
Roses—and bees.

June, I am yours,
By all magical lures!
Bees in their coming
And going and humming
Have woven my heart in a web that
endures—

June, I am yours!



FROM NORTH, EAST, WEST AND SOUTH



In Northern California.—Last fall in most sections the honey flow shut off abruptly and not a few colonies went into winter with the spores of American foul brood in their honey. During March and April the weather was decidedly unfavorable. The frequent cold and windy days during this time compelled the bees in many instances to use up almost their last ounce of honey. Where bees were not fed either last winter or early this spring the loss thru starvation has been considerable. The loss thru American foul brood has also been great, owing in a measure to the large consumption of old honey. European foul brood in the valleys has been almost a negligible affair despite the fact that the conditions for its growth and development have been ideal. Along the Sierra foothill districts, however, European has proven a very serious matter and this is especially true thruout Tuolumne County. On the whole where bees have been supplied with ample honey they have bred up to normal strength, and where disease can be gotten under control a good crop this year is expected. The flow from orange and mustard was nearly normal during April and, at the beginning of May, with favorable weather, increased perceptibly.

During the latter part of March and the beginning of April our section of the State was favored by a visit from A. P. Sturtevant, specialist in bacteriology of bee diseases, of the U. S. Department of Agriculture. Mr. Sturtevant during his stay with us covered considerable territory and imparted much valuable information regarding the diagnoses of brood diseases. He said that with one exception he found that the problem of differentiation between American and European foul brood was more baffling in Stanislaus and Sacramento Counties than in any other sections where he had carried on investigations. He stated, furthermore, that the number of cases of American and European found in the same colony and even in the same comb were far greater in this section than in any other which he had visited. F. W. Burtch, secretary of the Central Valley Honey Producers' Co-operative Exchange called a special meeting of the beekeepers within the territory of the Exchange in order to meet Mr. Sturtevant. The gathering was well attended and certainly most appreciative of the fine work which the government is undertaking in their behalf. The diagnosis of brood diseases is not nearly as complex as most of our beekeepers supposed, and many of them after Mr. Sturtevant departed remarked that not for many dollars would they have missed his talk on the subject. Valuable as his demonstrations were with the microscope, it was his candid and thoro talk on the "symptoms" which impressed the bee-

keepers the most. It was the getting down to the finer points in the symptoms and a careful study of these symptoms at the various stages of the disease which helped so much to clarify and make it possible in almost all cases without the aid of a microscope to make a correct diagnosis. It will be unnecessary to describe the symptoms of the principal diseases, for E. R. Root has taken care of this subject quite adequately in the May issue of *Gleanings*. Every beekeeper must try to familiarize himself as much as possible with the various stages of the trouble and not rest till he knows what he has, and likewise bear in mind that prompt and proper treatment, weather conditions permitting, is imperative. M. C. Richter.

Modesto, Calif.

* * *

In Southern California.—Unsettled weather has prevailed over southern California for some time. Conditions, in general, have not been favorable for honey production. This is often the case during our orange-honey flow, when cool nights, foggy mornings, and cold weather prevail for several days or even weeks at a time. As the ground is quite dry where the trees have not been irrigated, these moist fogs help considerably toward a secretion of nectar. Altho I have not heard of that profuse secretion often referred to as sweetening up the horses and harness as they come in contact with the blossoms, the flow has been good most of the time since the trees came into bloom. A man of long experience in orange-growing told me that five hours after he began irrigating his trees, he could see the effect on the blossoms. They looked fresher, opened out better, stayed on the trees longer, and the bees were much thicker around them.

Today, May 4, at 11:30 a. m., the thermometer stood at 60 degrees. This is too cold for orange-honey production. Of course, every day is not this cold, but we dislike seeing any such days when the trees are in full bloom.

The sage country does not promise much honey. The rainfall of practically all of the territory depending upon this kind of moisture is below normal. The Imperial and Palo Verde Valleys will perhaps get their usual crop as they depend entirely upon irrigation. Some of the reports from San Diego County say that they will get a fair crop. That county reports more rain than Riverside, Orange, Los Angeles, or San Bernardino Counties. The fact that they have this extra rainfall will help their great white sage ranges, which furnish honey during June and July. When the orange honey is made, Riverside, Orange, Los Angeles, and San Bernardino Counties will likely have the bulk of their crop produced.



FROM NORTH, EAST, WEST AND SOUTH



When moving to the orange locations this year, I selected those colonies that were not considered strong enough to store honey satisfactorily and placed them in pairs about six inches apart. After they were well located and just as the flow was starting, I removed the weaker of the two, together with the queen, a frame containing eggs and larvæ, one of honey and pollen, and enough bees to start a nucleus. We put it on a new location. The remainder of the brood and bees were placed in the hive on the old stand. This gave us a colony that has given good results so far in storing surplus honey. If either queen is an old or poor one, I kill her, unite the two colonies, and after the flow divide again. This way one still has the same number of colonies. Your correspondent spent May 1, the opening day of the trout season, high up in the San Bernardino mountains. Up there, at an elevation of about 5,000 feet, about ten years ago there were kept 200 colonies of bees. The man who had owned them said that he always made a crop of honey and the bees never had to be fed. The honey was of a very inferior quality, however, and there was no market for it. With the present demand for any grade of honey, I believe small apiaries—say from 50 to 100 colonies—would pay well scattered over our higher altitudes. Considerable bloom is seen all summer scattered over the hills and valleys and the honeydew on the live-oak trees is very heavy at times.

Now we are told that we have been using a can manufactured and intended to carry oil weighing eight pounds per gallon. Are beekeepers more trusting than other people? Can it be true that the five-gallon can used almost universally to pack the honey crop of the Western States was originally made to carry 40 pounds of contents? If so, is it any wonder that we have trouble in successfully shipping 60 pounds of honey in them? The California Honey Producers' Exchange has adopted a can made of much heavier material and stronger in every way.

Disease, especially European foul brood, is very prevalent in some places in southern California. This seems to be the case in apiaries that were clean last year, they having been treated successfully two years ago. At least so the owners thought. Some apiaries have shown no recurrence of the disease; while, in others it seems to run rampant thru the great majority of colonies. In some cases it will run down a row of hives taking every colony until it strikes a queenless one; or, perhaps, two or three very active Italian colonies. These sometimes check the disease. In talking with different beekeepers, I am reminded of the boy who had the headache. He said that he would much rather have the toothache; while the boy with the toothache said that he would

prefer the headache. The apiarist with the American foul brood would prefer the European foul brood, while the one with the European can much more readily get rid of the American variety.

The date now set for the first shipment of bees from southern California to the Idaho locations is May 12. One month from that date will perhaps cover the shipping period for all northern bees wintered in California.

L. L. Andrews.

Corona, Calif.

* * *

In Minnesota.—On page 610 of the October issue of *Gleanings* I stated that one of our problems in this State is to arouse a greater interest in the annual honey exhibit at the State Fair, where the daily average attendance last year was over 71,000. At the last meeting of our state association the superintendent of the exhibit made an earnest appeal to the beekeepers of the State to recognize this as a splendid opportunity to advertise our honey, and thus help to build up the bee and honey industry in the State. A few years ago it was generally acknowledged that our annual State Fair honey exhibit equaled, if it did not surpass that of any other State in the Union. Two years ago certain changes were made so as to give all beekeepers in the State the greatest possible opportunity to participate, but the beekeepers have not responded in sufficient numbers to make the plan a success. This year a few more changes are being made in a final effort to encourage the co-operation of the beekeepers of the State. If this fails we will probably be compelled to go back entirely to the old method of professional mass exhibits, or have no exhibit at all. Let every beekeeper begin now to make plans to have an exhibit at the State Fair next fall. The new premium list will soon be off the press and a copy can be secured by writing Carl B. Stravs, 4649 York Ave. South, Minneapolis.

The commercial beekeepers' course of lectures given by Dr. E. F. Phillips at the University Farm, St. Paul, the last week in April proved to be all that Mr. Holtermann reported concerning the Cornell University course, page 228. Mr. Demuth was unable to be with us on account of sickness, but Dr. Phillips did double duty so we were able to hear the complete course.

Minneapolis, Minn. Chas. D. Blaker.

* * *

In Texas.—Perhaps every State has its share of local manufacturers of bee supplies, but it seems as tho Texas has more than its share. Following the move to get all the bees out of box hives into movable-frame hives, there has appeared an extra crop of hive manufacturers. Of course, some put out a good and satis-



FROM NORTH, EAST, WEST AND SOUTH



factory product, but in far too many cases the product is not standard in every respect. Those who are about to transfer have been warned to secure standard equipment and to use it properly. It has been well said by a prominent beekeeper that what 90 per cent of the people accepted as standard was good enough for him. There may be an apparent saving in buying local supplies; but this is, at best, only temporary. If the time comes when additional supplies are needed, the local house may not be running and it will be necessary to buy elsewhere. This will most certainly show that the local equipment will not interchange with the standard, which will be a serious handicap for all time to come. In this connection it is not possible to overestimate the value of using full sheets of foundation when starting in new hives.

During the past year several beekeepers have become interested in introducing honey plants, primarily sweet clover. It is hard to say, but some of this seed that has come from the seedmen has not developed into what was expected. In a few instances burr clover came when white sweet clover was sown; and in other instances a close relative of the yellow sweet clover, of which the nectar is not available, has resulted. If at any time any beekeeper feels any doubt as to the variety and purity of his seed, he should correspond with A. B. Conner of the seed laboratory at College Station. Directions will be given for sending samples of seed, which are examined free of charge. Definite information concerning the growing of sweet clover in any locality can be secured by writing to the above-mentioned party.

Reports from all sections of the State indicate conditions which are nearly normal again after the year of such extreme conditions. In the Valley region the honey plants are in good condition, but rain is needed. The Coast region is also in need of rain to get the best results from the horsemint, altho catsclaw and huajilla have given a good honey flow. In this region the first mesquite bloom did not yield any nectar. In the southwest region the honey-plant conditions are better than for several years and the prospects are good. Here the catsclaw and huajilla are just in full bloom. It is feared in this region that the first mesquite bloom will not yield nectar. In the west region, honey-plant prospects are good with alfalfa and mesquite about to bloom. The conditions are extra good in the east region, while in the central region the honey plants are in excellent condition, and in the north region the prospects are very good. From these reports it would seem that honey plants are able to revive very quickly when favorable climatic conditions prevail.

With honey plants in such good condition it is only natural to expect that a good con-

dition of the bees would follow, yet it is a matter of wonder how quickly the condition of the bees can change when honey plants are favorable. In the Valley, bees are in very good condition. In the Coast region a peculiar condition has developed, that of excessive swarming. This has resulted in some actual loss. Brood-rearing has been variable in this region. In the eastern section of the southwest region the bees are in excellent condition, while in the western section only about half of the bees are normal in strength. In the west region the bees are in fair condition and improving rapidly. In the east region the bees are in exceptionally good condition. In the central region the bees are in excellent condition with a tendency to excessive swarming. In the north region the bees are in excellent condition.

Of course, conditions vary so much within the range of the State that whether there is surplus honey or not, at this time, does not affect the yield for the year. However, a surplus has been harvested in the Valley, along the coast, and in sections of the southwest regions. In the east region a surplus has been made but has not been harvested. The local price of this early honey varies from 25 cents per pound retail for extracted in the Valley region, to 20 cents in 60-pound cans in the Coast region.

A normal crop of honey is expected this year in the Valley region, and in the Coast region a good average crop is anticipated, but in some sections it will be late. In the eastern sections of the southwest region a normal crop is forecasted, but in the western section only about one-half of a normal crop is expected. In the west region a normal crop is anticipated, as is the case in the east region. Thruout the central region a full normal crop is expected. In the north region it is yet too early to forecast the probable crop of honey for this year.

With such a vast amount of inquiries for bees it is interesting to note that there are still bees for sale. Not many have changed hands, for it is hard to bring the seller and buyer together. The price has been very high, \$15 in one region. There are only a few now specializing in shipping nuclei and pound packages. In box-hive sections there are some scattered colonies for sale.

F. B. Paddock.

College Station, Tex.

* * *

In Florida.—I wonder how many Florida beekeepers took note of that paragraph on page 319 of last month's Gleanings relating to the appearance of foul brood in Jamaica. In Cuba it has already become something of a menace, and the time cannot be long before this State will have to fight disease. In what position will the beekeepers be when that time comes? So



FROM NORTH, EAST, WEST AND SOUTH



far as I can find, our industry receives no official recognition, we have no beekeepers' organization, no state inspector, no apicultural department, no state appropriations are made in our interest, there is no legislation pertaining to our industry—in fact, we are the most helpless State in the Union to cope with any emergency that may arise.

Most of us are very careful and are constantly on the lookout for any symptoms of disease. Even in the matter of introducing queens from other States, we are careful to burn the cages and bees, tho there may be no danger from this source. It might be well for beginners to purchase their queens in Florida and take no risks, for it is the beginners who will suffer most. There is just as good stock in Florida as anywhere and this year conditions seem exceptionally well suited to raising the finest of queens.

It is not, however, from the purchase of queens that we shall get disease, but it will come from the movement of carlots of bees from Northern States to take advantage of our mild winters. I have before me a number of letters from States as far north as Michigan, regions where foul brood is rampant, the writers of which state that they will be bringing down carlots of bees next October and November, and taking them back after the orange bloom. As things are at present we cannot prevent this. We who have experienced the Florida wintering problems and the erratic orange flows know that the moving of bees to Florida for the winter will not be a profitable undertaking, and will not be tried more than once by anyone, but the damage to our interests may be permanent. All writers state that they do not want to "butt in" on anyone; but they cannot realize that all orange locations that would be suitable for such wholesale occupation are already being developed by resident beekeepers, and there is already too much "butting in" being practiced by Florida beekeepers themselves. There have been several cases around here where bees were placed in a starving condition by the crowding in of outsiders during the orange flow.

I invite correspondence from experienced Florida beemen on this subject of long-distance migratory beekeeping, in anticipation of a special article in the August or September Gleanings. Also, I would state that unless I receive more co-operation from the big producers of Florida my name must disappear from this column of Gleanings. [Not if we can help it.—Editor.]

At the present time gallberry is blooming, and it is yielding exceptionally well. Saw palmetto is beginning to open, and the prospects indicate that we shall obtain much more honey from this source than we did from the orange. Already that "most delightful drowsy humming" is to be heard

at night. One friend describes this "humming" or "roaring" as "the bees counting their money." Harry Hewitt.

Apopka, Fla.

In Ontario.—The weather, besides being very rainy to date, May 8, has also been steadily cool, and it has been a good while since bees have had so few flying days in the spring as has been the case this season. One beekeeper near me who winters most of his bees in the cellar, had been waiting in vain for a fit day to take his bees out of the cellar, and when I was at his place a few days ago the bees were inside yet and naturally very uneasy. On the other hand, I know of a large number of colonies in different yards that were taken out of the cellar on March 25. Our own bees, 70 miles away, that were wintered in the cellar, were placed on summer stands on Apr. 21, and they are in fair shape but somewhat short of stores. During the past few days, prominent beekeepers have written me saying that many of their colonies had stopped brood-rearing, having neither eggs nor unsealed larvæ, altho the queens were all right in every way. Evidently, the long continued spell of cool, wet weather, with little or no pollen or nectar coming in, is the cause of this condition.

This brings up the question of stimulative feeding here in the North during early spring. For years I have been opposed to the practice for many reasons, but there is a possibility that, under certain conditions, spring stimulation may prove beneficial. Early in March we found quite a few colonies in the five yards near home that were short of stores at that early date. A few were nearly out of food, but the majority of the 40 odd colonies affected had poor stores that had granulated solid in the combs and the bees were unable to use it, and were showing signs of dysentery. With considerable misgivings, we started to feed these colonies, placing an inverted five-pound pail over each, filled with syrup, covering all over snugly with the packing material on top. About every 10 days they were given a pail of food, no matter what the weather was like. While the weather since then has been very cool, yet we have had very few days of really severe weather. Anyway, I have to confess that at this date many of the colonies thus fed are away ahead of others having lots of stores from last fall and so not fed this spring. But I am not changing my opinion yet as to spring feeding, for even if an occasional season may show good results from the practice, the discomforts and worry that go along with the job more than make up for any benefit gained, so far as I understand the matter.

Markham, Ont

J. L. Byer.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Are Our Apiaries Too Large and Too Far Apart?

Most people say bees fly two miles. I guess they do if they have to, or if nothing is in their way. But what is the radius of their effective range in which they will do well and under what circumstances will they not fly far? A difference of a few hundred yards frequently makes a big difference in the honey yield.

One of my neighbors and I, each, have had a yard about a half-mile apart. One would think the bees would work almost the same range, but every year he has dark honey and I have light. My location once had enough bees on it to kill the range for honey production, yet he gathered a fair crop. Last year conditions were reversed, and he scarcely made an extracting while I received a fair crop from mere nuclei.

If bees fly two miles, it seems there should not be this difference, but in between our two yards are many small fields, many of them bordered with trees. I think the trees are the key to the situation, for I do not believe that bees will fly half as far in a cut-up country where there are many things to break their flight. Further, we have much wind here. I do not believe bees work much over a half a mile from their yard with strong winds such as we have here.

I conclude from this that much honey is lost every year by putting enormous yards in a place instead of putting a fewer number and setting them from a half-mile to a mile apart and doing the extracting at a central honey-house. I do not believe bees generally work further than a half-mile from their yard unless they have to. And I know one thing—I don't want them to do so, if I can help it.

T. W. Riggs.

Overton, Nev.

Treatment of Laying-Worker Colony.

Last summer I raised 48 queens and lost only two in introducing, altho more were lost in mating. My plan for introducing is by the nucleus method with some modifications. I believe it is well worth the extra time it takes, as it practically insures success. By this same plan I have been successful in introducing a laying queen into a laying-worker colony. Here is my treatment of a laying-worker colony: After removing the inner cover of the colony to be treated, I place on top a ventilated bee-escape board (without escape), having cut in one end an entrance $5/16 \times \frac{1}{2}$ inch (entrance up), over which I place a two- or three-frame nucleus with queen and whatever brood she may have started, the rest of the frames being drawn combs or full sheets of foundation. This I leave for one week or more, when the nucleus body is placed down on the old bottom-board, the

ventilated escape-board placed on top, entrance down, which will be used by nucleus bees until accustomed to bottom entrance. Over this is placed an inner cover with empty hive body on top and telescope cover. The old laying-worker colony is removed about one-fourth mile and shaken, the bees returning to the old stand to find a laying queen and bees of the same colony odor. I have tried this plan a number of times, and so far have each time succeeded.

Rochester, N. Y.

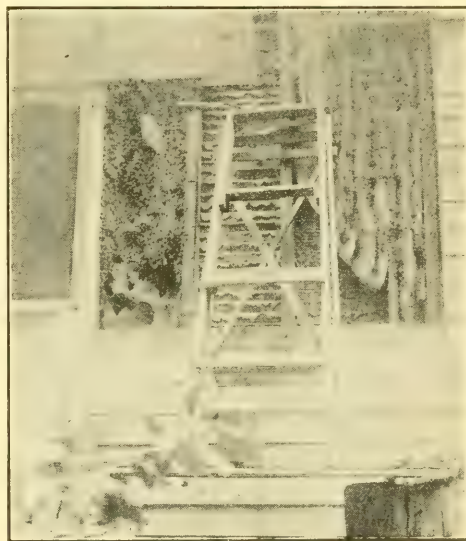
Archie S. Lane.

[This seems very easy, but why not just exchange places with the laying-worker colony and a good colony and then requeen the former?—Editor.]

Two Colonies of Wild Bees.

The accompanying photo shows two swarms of bees in the

side of a house, that a friend and I got some time ago. The picture was taken when only part of the siding and sheeting was removed. One swarm occupied a space 24 inches wide and about 7 feet long. The other oc-



Showing how bees built their homes in the side of a house.

cupied a space 16 inches wide and 10 feet long. They had been in the house for a number of years, but all the old honey had candied and was in excellent condition. Some of the combs were 5 or 6 feet long. We secured about 250 pounds of honey from the two swarms so we were well paid for our work. We also saved both of the swarms.

I have taken a number of swarms from the sides of houses and have always saved

HEADS OF GRAIN FROM DIFFERENT FIELDS

the bees. Where the combs are fairly large and straight I do not disturb the bees any more than necessary, but cut the combs loose carefully and examine each one for the queen. As soon as she is found I put her in a hive containing drawn combs and one frame of brood, and then shake the bees off the combs into the hive. If the combs are crooked and uneven, I drive the bees up with smoke as I cut the combs loose. As soon as I get them clustered at the top I put the hive up under them and brush them down into it. I usually do not try to save the brood-combs unless they are fairly large and straight. M. L. Dodson.

Jennings, Kan.



Swarmed on His Head.

I recently found a swarm of bees hanging on a branch of a tree close to the ground. I put it into a small box and took it to my cottage. They began to work, and made some comb. Two

heavy. The whole swarm clustered on my hat and hung down over my face, so I put the boards over my forehead to keep the bees out of my eyes. Then I walked about 15 rods to where an assistant had brought a hive and there had several pictures taken (one of which is reproduced here). I then lifted my hat and shook the bees into the hive, and now they are working finely and have the hive nearly full of nice combs, brood, and honey. I didn't have a veil or gloves on, and got nary a sting. It seemed strange that they were so gentle, after being so long without honey and having been disturbed so much.

My home is at Yorkville, Mich., but I am at present with the Nashville Agricultural Normal Institute at Madison, Tenn. This swarming incident occurred on the Institute farm. They have 30 stands of bees there, and are just starting to increase their apiary. J. C. Howell.

Madison, Tenn.



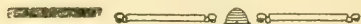
A Californian on California Conditions.

E. R. Root is all right in his presentation of the darker side of the wintering situation in California (March and April Gleanings). His picture is a needed corrective of the much gilded and rosy-tinted pictures of un-failing prosperity in the beekeeping business here. His picture might be modified somewhat, however, for some locations in regard to contrasts and temperature in winter. When I lived at Monterey, I was not myself situated so near the pasturage as to be able to do what I now instance. But my friend and neighbor, C. W. Kerlin, had bees in the hills of Manzanita where there is a honey flow in January, and many winters the bees made surplus that enabled him to extract very considerable harvests in February and early March and still leave the bees strong and ready later for black sage, poison oak, etc. Dwindling did not bother much.

Regarding the clever idea of H. H. Sweet of the A. I. Root Co., page 210, April Gleanings, will it be immodest for me to indorse and say that over 20 years ago, when I used to write for Gleanings from Monterey, I used those paper contractors between closed-end frames and thought the idea my own?

Watsonville, Calif.

A. Norton.



A Jab Here and a Jab There.

On page 231, April Gleanings, Dr. Miller speaks about blue cappings for the first time last year in 30 or 40 frames of honey that must have come from cow peas, as there was quite a flow (30 pounds to some hives) and nothing but cow peas visible.

Now that I am started I should like to



A bunch of trouble and evidently some anxiety.

days later I transferred them into a hive where they stayed about two hours and then began coming out. I happened to see them when about halfway out and took two small boards and began to slap them together. The bees followed me to a peach tree. As they began to alight I got close up to see the queen, and at once felt my hat becoming

HEADS OF GRAIN FROM DIFFERENT FIELDS

tell Josephine Morse, page 226, also the Editor, page 214, that a good way to move bees is to spread a sheet on the ground, set the hive in the middle, and pull the sheet up on the sides, tying the two front corners of the sheet at the back of the hive, and the two back corners at the front of the hive. It may be done in half the time required for sacking a colony, and with much less danger; and when one takes the hive out, the cloth beats the bag all to death. Just untie the two knots and throw the cloth down and run; and when the bees have all gone in, lift the hive off the cloth or use smoker and drive the bees in before throwing the cloth down.

On page 248, in answer to Julius C. Bechtel, I suggest that by using the hanging section-holder (N super) which covers the sections on all sides, I save half the scraping, and the sections look better without scraping than they used to with it.

On page 227, in fastening with a stick, why not use a furniture caster and roll it down in half the time? and why waste six per cent of your foundation (which is \$6.00

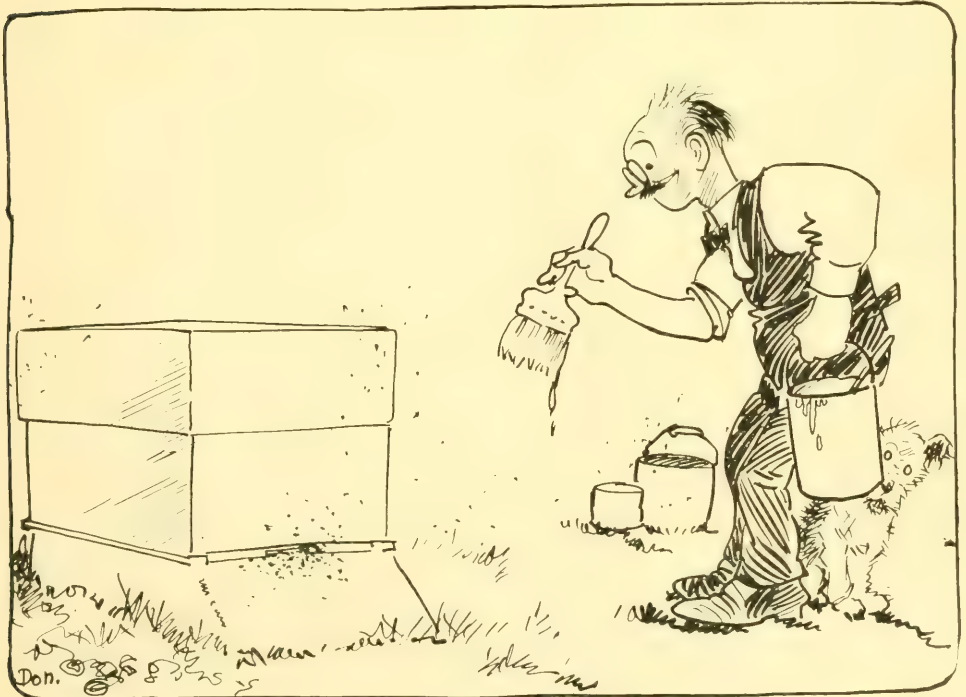
on every \$100 worth of foundation) by mashing it down on the top-bar, when you can fasten it just as well, or better, and just as rapidly, with a spoon and hot wax (even without a groove) and save four or five dollars out of the six? In using different methods of fastening foundation, wiring, etc., half the battle is in learning how to do it quickly, which is learned only by practice. A man tries a new way for a few minutes and pronounces it no good, and says he can do it faster his old way; whereas if he would try the new way till he gets the hang of it, he would save much time, and perhaps dollars' worth of material.

Hammonton, N. J.

C. E. Fowler.

[Such section-holders would prevent much propolizing; but we find there has been very little demand for them during recent years.

* * * There is value in the suggestion of saving wax when fastening foundation; but why not save still more wax by using one-third rosin? R. F. Holtermann saves all the wax by using paraffin and rosin.—Editor.]



THE BACK LOT BUZZER.

When Ma got home from Florida this spring she said she wouldn't exactly state that the bees and everything she saw down there was lazy, but she did see a dog chasin' a rabbit one day, an' they were both walkin'.

"B EES have wintered well where stores were abundant, but the mild winter kept them breeding and many got out of stores before spring. I

have been feeding raw sugar and water in outside feeders when weather permitted the bees to fly. Beeswax must be scarce as I was offered 48 cents a pound two days ago."—F. P. Clare, Toronto, Ont., May 1.

"Swarming usually occurs during the first part of June here. This spring I cut queen-cells as early as Apr. 20, and one colony cast a swarm May 5."—E. M. Barteau, Suffolk County, L. I.

"I do not know as I understand fully why the smoker is used. I have not been using it recently. I wear a bee-veil but work in short sleeves and use no gloves. Have never been stung."—Carrie Greenlee Davidson, Hidalgo County, Tex.

"This has not been a good season in our district. In the spring there was great promise, but there was no nectar in the bloom. We have had a very dry summer, following a dry winter."—Geo. Lewis, Galston, N. S. W., Jan., 1919.

"As to sacking beehives, this is not a new thing. We have used the plan for the past ten years and at one time used 500 yards of cheese cloth made into sacks to move an apiary. It seemed the most practical plan, especially where hives are old and can not be made bee-tight, also in moving old box colonies."—G. W. Bercaw, Los Angeles County, Calif.

"Is it ominous? Not since 24 years ago have the hives been so overrunning with bees during the month of April, and the beekeepers in this section will remember, no doubt, that feeding for winter was the rule in the fall of 1895. Here is hoping that there will be no parallel between the years of 1895 and 1919 in the matter of nectar secretion at least."—J. B. Howe, Cattaraugus County, N. Y.

"Along the Atchafalaya River, from its source at Red River to the Gulf, is a veritable paradise for bees. There are numerous places where as many as 500 colonies could be kept in one yard. One producer in this territory last season having 250 colonies of bees (spring count) produced more than \$5,000 worth of honey and at the same time increased his colonies to 329."—T. C. Davis, Specialist in Bee Culture, Louisiana State University.

"When the weather is cool and rainy and the bees must be fed, I feed loaf sugar in the back of the hive on the bottom-board. Push the hive body forward until the opening is wide enough to admit the sugar. Before placing on the bottom-board I use a

BEES, MEN AND THINGS

(You may find it here)

medicine - drop-per and drop one or two drops of water on each loaf. This way of feeding has been very satisfactory with me. Just as soon as the natural

stores begin coming in the bees will desert the sugar."—Theodore Scharff, Greene County, Mo.

"Can bees hear? That is plain—bees can hear. But is theirs the same hearing as ours or not? I don't know. Perhaps bees can tell, think, smell, and so on. But it is an unknown thing whether it is the same of man or not. Our hearing, seeing, telling, thinking, smelling, etc., are not the same in musicians, artists, poets, philosophers, cologne-makers, and others. The bees can see but they are blind for some colors. So they can hear, but in a different manner and sense from humans, I think."—Yasuo Hiratsuka, Tara, Gifu-ken, Japan, March 2.

"People here laugh at me because I take so much trouble to make the hives and spend money on material and tools. They say that they get just as much honey out of ordinary boxes, but I do not believe it. Anyway, my honey is nicer and clearer, and I have no difficulty to sell it at 6 cents more than my competitors. I should like very much to get some Italian bees, as I think that the natives (both men and bees) are rather lazy. The largest beekeeper in this vicinity has about 100 boxes of bees and made last year 2,000 pounds of honey and considerable wax. The record colony last year, so far as I know, produced 180 pounds of honey."—Alberto Hunernadel, San Geronimo, Republic Argentina, S. A., March 26.

"Bees are not as common among the farmers in France as in the U. S., but I have seen several large apiaries. I have never seen a better kept apiary than one of these. The hives were in rows, each row on a terrace about two feet higher than the row in front of it. The hives were all alike, but the fronts were painted in different colors. The grass was cropped close and the shrubbery neatly trimmed. The honey-house, built of carved stone, contained hundreds of drawn combs and two extractors. The supers which contained the drawn combs were piled in stacks and the cracks sealed with paper. The keeper told me that he took from 50 to 70 pounds from each colony and received about 50c per pound. When you find a farmer owning bees, which is not often, you find them using straw hives with the cracks filled with cement. Sometimes you find a farmer having homemade wooden hives. I think they commonly use straw hives because lumber is so scarce and high-priced."—J. L. Clark, Headquarters Co., 109th Field Signal Bureau, A. P. O. No. 911, American Forces.

JUST NEWS

Editors

A FIELD meeting of beekeepers will be held under the auspices of the Colorado Honey Producers' Association on Saturday, June 14, at Iceland Park, Greeley, Colo. A large attendance is expected and a good program will be provided. Several beekeepers of national reputation are expected to be present. The Greeley beekeepers will provide refreshments and will also have automobiles at the trains to meet beekeepers that may arrive by railroad. Everybody interested in beekeeping who can possibly arrange to be present, is cordially invited. C. H. Wolfe is chairman of the entertainment committee, and Frank Rauchfuss is secretary of the Association.

* * *

Beekeepers of Arkansas, representing the various county associations, will convene in Little Rock at 9 a. m., May 31, at the court house for the purpose of organizing an Arkansas Honey Producers' Association.

* * *

There will be a field meeting of the beekeepers of three counties of southern Michigan and two counties of northern Ohio on July 11 or 12 at or near Jasper, Lenawee County, Mich. The summer meeting of the Michigan State Beekeepers' Association will be held on the 15th and 16th at Boyne City.

* * *

The Michigan Beekeepers' Association succeeded in getting the legislature of that State to appropriate \$10,160 per year for the next two years for inspection work. The Michigan Beekeepers' Association now has a membership of 375 members and is aiming to have 1,000 members by the end of this year. It is a real association and is constantly doing excellent work.

* * *

The newly-organized Montgomery County, Pa., Beekeepers' Association held a very successful outdoor meeting at the apiary of J. S. Shaeffer of Trooper, Pa., on May 3. On June 14 the Philadelphia Beekeepers' Association and the Pennsylvania State Association will hold a combined meeting at the School of Horticulture for Women at Ambler, Pa.; and on June 28 a combined meeting of the Philadelphia and Montgomery County Beekeepers' Associations will be held at the apiary of Wm. Wakeman at Washington Square, Pa.

* * *

The Birmingham, Ala., Ledger of date of April 26 said: "The Alabama extension service is making a beekeeping survey of Alabama to ascertain and develop the interest and investment in bee culture in the State. Dr. F. L. Thomas, the extension entomologist at Auburn, has just sent out

5,000 circulars requesting owners of bees to give full information of their plans, numbers of colonies, kinds of bees, surplus honey produced in

1918, where marketed, and important honey plants in the locality. A systematic and continuous effort is thus being made to develop one of the great natural resources of agricultural life in Alabama.

* * *

The older readers of Gleanings will be pained to learn of the death of Eugene Secor, Forest City, Ia., aged 75 years, who was, on May 14, gored to death by a bull. It will be remembered that he was, from 1897 to 1902, the very efficient General Manager of the National Beekeepers' Association, and that much important work was done during his tenure of office. His few prose writings were of value; but it was as a poet that he was best known to beekeepers, being for many years the favorite poet of beedom.

* * *

The fifth annual report and balance sheet of the New Zealand Co-operative Honey Producers' Association for the year 1918 shows the total sales of the Association for that year to have been more than \$176,000. The number of shareholders in the Association increased during the year from 238 to 420, and the subscribed capital increased from \$22,550 to \$33,580. Reviewing the 1918 season's operations the annual report states that the Association's business was beset with many difficulties and perplexing situations. The shortage of shipping proved a very real difficulty, and up to the end of the year 1918 only 135 cases of the 1918 crop had been shipped. But since then, the report states, due to the cessation of hostilities, 329 tons of honey were shipped during the first two months of the present year. The report contains this rather significant statement: "Some of our suppliers appear to have been at fault in the handling of their honey, quite a number of lines having been held up from time to time by the graders, and a much larger percentage than usual finally rejected." It is evident that careful grading of food products is one of the specialties of the New Zealand government. One of the regulations of the Association reads as follows: "Honey forwarded to the Government grading stores must be granulated hard and must in all other respects comply with these regulations and any regulations issued by the Department of Agriculture in respect to honey to be passed by the Government graders for export. The Company is not bound to accept at Government grading stores honey that does not comply with the standard required by the Department of Agriculture for export."

AN argument between Charles Blaker and Frank Pellett concerning inspection appears in the American Bee Journal (May). In reply to the statement of Pellett, in the February issue, that the office of inspector should be purely educational, Blaker dissents, saying education is important but not sufficient; nor does he agree that, as in the case of hog cholera, as mentioned by Pellett, the owner's financial interest in the welfare of his property will be sufficient incentive to keep his colonies free of disease. In the February issue Pellett objected to the inspector being judge, jury, and executioner in cases of diseased colonies. Blaker wishes to know why this would not be as fair as in the case of glanders in horses or tuberculosis in cattle. Mr. Blaker objects to comparing the inspector to a policeman who "is called only when you have committed a crime or are suspected of malicious intent." He says that during his four years as an inspector he has met with serious objection from less than one-half of one per cent of the owners whose apiaries he inspected, and only one considered him a "policeman," and that one was mentally deranged.

Thruout this discussion Blaker apparently feels (1) that there should be proper law in regard to diseased colonies, and proper enforcement of the law; (2) also that this enforcement of the law as well as educational duties should be in the hands of the inspector. To the first point Pellett quite agrees, showing in his reply that he has never proposed doing away with such law. To the second point he objects, asserting that the enforcement should be in the hands of the officers whose business is the enforcement of law. He does not think that satisfactory results can be obtained with the present law, and feels it has been tried out long enough to prove this; and he thinks that, with the same expenditure, much more could be accomplished if the inspector were given educational duties only. Further, he explains how much harm has often been done by incompetent inspectors. The remedy for unsatisfactory results and incompetent inspectors, Blaker believes, is to change the inspectors and not the law. [Frank Pellett is surely right in emphasizing the value of the educational duties of the inspector; but how it would work out to place enforcement in the hands of local authorities, we are not certain. This point is discussed neither by Pellett nor Blaker. We accordingly quote one view of the question from a recent letter bearing on the subject. The letter is from E. C. Cotton, Chief of the Bureau of Horticulture, Columbus, O., and is as follows:

"I believe that no one recognizes more

THE BEST FROM OTHERS

Iona Fowls

thoroly than I do that the foulbrood problem is very largely an educational one, and that more can be accomplished with a comprehensive campaign of one

year than can be accomplished in a decade of pure police work. However, it is necessary that there should be police power to handle those that refuse to listen to education. The provisions of the Iowa law place this enforcement in the hands of local authorities, which I believe to be entirely wrong, and one that the experiences of this State have demonstrated as out of the question. It is necessary to have a disinterested police power—one that is not beholden for their votes to the people whom it is likely to be required to deal with in enforcement of a law.'"]

* * *

SUGGESTIONS CONCERNING ISLE OF WIGHT.

In the search for a strain of bees immune to Isle of Wight disease, the Egyptian has been suggested. A. Z. Abushady, in the British Bee Journal for April 10, believes the apparent immunity is probably due to the difference in climate, and thinks that if Egyptian weather could be substituted for English weather the marked fatality of Isle of Wight disease would cease. He believes metabolic poisoning from wrong dieting, together with prolonged confinement, is more important as an injurious instrument than infection itself. He suggests the possibility that the rectal glands of Chun, which Dr. Brunnich believes are concerned in the excretion of water from the blood, may, because of irritation or lesion, secrete such an abnormal amount of fluid that the blood pressure is so lowered that flight is impossible. There is a better chance, he believes, to combat the disease with education than with specifics and cures.

* * *

EXCHANGE BUYS GOOD CANS.

The cans produced by the California honey-producers, says the Western Honeybee, April, are of 135-pound tin. When tested, a can was filled with honey and dropped from knee height. Not until the tenth drop did it give way at the corners. Chas. Justice estimates that on the 42,000 cans with cases which the exchange has just purchased, members who usually buy at jobbing prices will be saved over 36 cents on each case of two cans.

* * *

TO PRODUCE WHITE COMB HONEY.

To produce comb honey, with nice white cappings, D. Anguish, in the Canadian Horticulturist and Beekeeper (May) gives this method: Place a body filled with full sheets of foundation on top of the brood-chamber, until a few days after the honey flow commences. Then take out the under

body and set down the upper body with new combs. (Altho it is not definitely stated, we infer a comb-honey super is to be placed above this body.) Shake in front of the entrance all the bees and queen from the old brood-combs just removed. In a few days give another super next the brood-chamber.

* * *

SOLDIER BEEKEEPER.

An article of interest to disabled soldiers is found in the American Bee Journal. There is given a short account of how Harvey E. Nichols, tho deprived of both legs, has made a successful start with bees. From one colony secured in 1915 he has increased to twenty, and is also now profitably running an apiary of 85 colonies on shares. At the age of 29 he is also putting himself thru high school, giving one-tenth of his earnings to charitable purposes, besides partially supporting a sister and grandmother.

* * *

HANDY ARRANGEMENT.

"When a load of full supers comes home from an outyard it is driven straight into the garage and the doors closed, so that robbers are shut out immediately. The load is then stacked in the extracting room at the left. Upstairs is storage room for supers, also the carpenter's shop, and there is a trapdoor right over the truck as it stands in the garage. This combination apiary building, carpenter shop, and storage, greatly simplifies transportation and makes us entirely independent of teams."—John Moore, Canadian Horticulturist and Beekeeper (April).

* * *

MARKING QUEENS.

Painting queens as an aid in recognizing them is practiced by Fern Stackli of Switzerland, as stated in the January American Bee Journal. For this purpose he uses chrome yellow made into a thick paste by means of alcohol and then diluted until liquid with sulphuric ether. For holding the queen while painting he uses a net made of a ring of pasteboard with a few threads about an eighth of an inch apart and running in all directions. This is slipped over the queen while a small particle of color is dropped on her back. Mr. Stackli usually marks his queens before they are mated and then introduces them immediately into mating nuclei.

* * *

FIRST CLASS INSPECTION.

From statistics we learn that foul brood is not only being controlled in Texas, but in some counties is being materially decreased. According to the April Beekeepers' Item this State has the most comprehensive foul-brood-control system of any State in the Union, and one of the main features of the system is education. Prof. Paddock believes that "Inspection work can not go forward alone. It must be preceded by educational work." He also says, "These inspectors are all practical, experienced bee-

keepers themselves, and have the interests of the beemen thoroly at heart."

* * *

BOTH DEEP AND SHALLOW FRAMES.

"The deep frame has its advantages under certain conditions, and so likewise has the shallow. We have a choice, and, more than this, we have the combination of the two systems, which gives us something better than either system alone."—Canadian Horticulturist and Beekeeper, April.

* * *

VENTILATING DEVICE FOR MOVING BEES.

In discussing migratory beekeeping, Morley Pettit, in the Western Honeybee for April, says when moving he uses a device about like a comb-honey super with the sides mostly wire cloth. One of these is placed between the bottom-board and the brood-chamber, and, if considered necessary, another between the super and the cover.

* * *

Para-dichlorobenzene is a new chemical, non-inflammable, harmless to human beings and domestic animals under ordinary conditions, and yet in many instances poisonous to insects. According to the Beekeepers' Item, April, this is greatly to be preferred to "high life," and is recommended to beekeepers by Prof. Paddock and other good authorities.

* * *

An account of a queen becoming chilled, and, as a result, losing her fertility, but later regaining it, is given in the American Bee Journal for May. We know that Mel Pritchard has had queens permanently injured in this way, but this is the first time we have heard of such a queen again becoming normal.

* * *

In the first issue of the Dixie Beekeeper, a new monthly that made its first appearance in April, the editor, J. J. Wilder, says because of rough handling there has been no end to the losses in shipping comb honey. The express company having grown tired of making good such losses has ordered its agents not to accept any more comb honey until a better way of packing is enforced.

* * *

Miss Mae Brown, who has charge of large queen-breeding apiaries in the Hawaiian Islands, has for her helpers four Japanese assistants as represented in the American Bee Journal for May. Requeening is done at the rate of over 2,000 each year, all colonies being requeened every two years.

* * *

"When you have a swarm, do not go queen-chasing. Watch for pollen going in. * * * If no signs at the end of the third week, have thoro examination."—H. C. C. Carter, in Bee Craft (April).

* * *

Royal jelly may be kept from one season to another, it is stated in the April Western Honeybee.

QUESTIONS.—

(1) Would a prime swarm coming from a diseased colony carry foul brood with it? (2) If near swarming time I take a frame of brood from a clean colony, place it in a clean hive, and then set this hive on a stand in place of a diseased colony, and move the diseased colony a few rods away, would the field bees that return to the old stand carry the disease? I would, of course, contract the entrance of the diseased colony, and in a day or two do away with them.

Glenn Ladd.

Pennsylvania.

Answers.—(1) If the swarm is hived in a hive containing only foundation, the bees would not be apt to become diseased; but, if hived on frames of comb, infected honey might be stored right in those cells, and thus the disease be continued. (2) If none but bees from the field entered, there would be no chance for spreading the disease; but in this method you have suggested, there would be a chance that when the diseased colony was moved away some of the bees might gorge themselves with honey and fly to the old location, where they would store a part of the infected honey in the cells of the frame of brood you gave them. This would, of course, give the colony foul brood. More than this, with your plan much valuable brood would be wasted.

Questions.—(1) When buying bees and queen, how is the queen sent—in with the bees or alone? (2) If I buy black bees will it be necessary for me to kill the black queen before introducing an Italian?

Mike Leash.

Ohio.

Answers.—(1) When a queen is ordered to be sent in the same shipment with bees, she may be introduced before shipping, may be sent in a cage by herself, or the cage may be placed in the package with the bees, so that she may be introduced en route. The last is probably as good a plan as any. Most queen-breeders would probably send in this way if requested. (2) Yes; and if introduced by the cage method the new queen may be given at the time of removing the old one.

Questions.—(1) How long will good ripe honey remain in cans without spoiling? (2) In answering the questions on page 42, January, 1919, about swarm control, you said it is best to leave field bees with the queen in the lower part of the hive. Why do young bees, when left with the queen, cause the starting of queen-cells in the lower hive body?

Chas. C. Mackay.

Long Island.

Answers.—(1) If honey is sufficiently ripened it may be kept for years without deterioration. (2) After a colony has started preparations for swarming, the nurse bees produce the milky food with which the larvae are fed. These should, therefore, be in the upper story with the brood. Part of the food that they produce will be given to the young worker and drone larvae, and part will probably be used as royal jelly in the queen-



GLEANED BY ASKING

Iona Fowls

cells, and this upper body is exactly where we want the queen-cells. Now, down in the lower story there will be only field bees, and consequent-

ly there will be little danger of queen-cells being started, for there will be no nurse bees to supply the food required for raising queens.

Question.—When I put on a super should I remove the inner cover from the hive body, or is the hole in the cover sufficient for the bees to go from the hive up into the super?

W. H. Goodwin.

West Virginia.

Answer.—Before placing the super over the brood-chamber the inner cover should be removed. If the super is an extracting-super, then between the super and brood-chamber there should be inserted a queen-excluder. If the super is a comb-honey super, containing sections of foundation, it may be placed directly over the brood-chamber, with nothing intervening. Over the top of either the comb or the extracting-super should be placed the inner cover, just removed, and there should be a piece of thin board nailed over the hole in the cover. Over this should be placed the outer cover.

Question.—In the January Gleanings we read that combs of candied honey may be removed from the hive, uncapped, dipped in hot water, and returned to the hives wet, thus saving honey that would otherwise be wasted. Will not hot water spoil the comb?

John Stahlman.

Sweden.

Answer.—That water was only "warm" when it left our desk; but it has passed thru the hands of the printer's devil since and became "hot."

Question.—Does the double-walled Buckeye hive need much protection from the sun during hot weather? Do you have to bore holes in the sides of the hive to keep it cool?

Lindsley Washburn.

Pennsylvania.

Answer.—The double-walled Buckeye hive is much warmer in winter and cooler in summer than the single-walled hive. No holes are necessary in the side walls of the hive in order to keep it cool. However, any hive, whether double or single walled, may need special ventilation during hot weather. See "Ventilation," under "Talks to Beginners."

Questions.—(1) Suppose one puts a weak queenless colony above a strong one with a queen-excluder between. Will the weak colony with the help of the strong one rear themselves a queen? If so, will the colony below the excluder swarm? (2) When a queen is raised in an upper story, how can she get out to be mated?

A. B. Wing.

Florida.

Answers.—(1) One could not be certain that the upper queenless colony would build queen-cells. If this plan were applied at swarming time the upper colony would be quite likely to build good queen-cells, and swarm. (2) A young queen can not be mated from an upper story unless an entrance is

left to the upper hive. When leaving such an entrance we advise giving it at the back of the hive rather than the front; for if the upper entrance faces in the same direction as the lower one, the queen, on her return, may see the bees entering at the lower entrance, and join them. This would result in one of the queens being killed. With a back entrance the queen is not as easily lost.

Question.—I have placed full sheets of foundation in my brood-chambers, but they seem to fall down. Why is this? I am disappointed in this, as it is my first trial in order to get worker brood.

Iowa.

E. H. Seeliger.

Answer.—If you use properly wired medium brood foundation in the brood-chamber, attaching it securely to the top-bar, and see that the hive has plenty of ventilation, we see no reason why the foundation should fall down. Of course, foundation should never be given unless there is a honey flow or you are feeding, for otherwise the bees will gnaw holes in it, and the weight of bees will finally pull it from the frames.

Questions.—(1) Is it possible that a colony will become queenless during winter and not die? (2) They claim that you do not have to wire the shallow frames. Is this so?

Paul A. Jacobson.

Minnesota.

Answers.—(1) Yes, this often occurs. Such colonies should, of course, be requeened as soon as possible in the spring or else united with some colony a little lacking in strength. (2) Some good beekeepers do not wire shallow frames; but we prefer to spend the extra time and trouble, and have all of our frames wired. It is, of course, not nearly so necessary with the shallow as with the deeper frames, as there is less danger of the combs being broken from the frames.

Question.—As my bees were hanging out as if about to swarm, I divided them. I took three brood-frames and put them in another hive with the bees that adhered to them. I think all the bees went back except a very few. In three days I again opened the hive and found the floor covered with half-grown dead bees. Why was that? Did they starve, or was it due to some other cause? I thought that perhaps they had foul brood; but I found in one of the books that foul brood smells bad, and my bees do not smell at all except like honey. So I think they starved; but there are still bees in the hive, and one of the frames has several queen-cells.

Miss Lucia Adams.

Florida.

Answer.—If there was no honey left in the cells, they probably starved; but we rather suspect your trouble was that you did not take enough bees together with the frames of brood when making your division, and that the old bees returned to their old location, leaving too few bees to keep the brood warm, and, therefore, it chilled, and the bees pulled them out of their cells. In this case it is also possible that the queen-cells may have been chilled, and that no queen will hatch. Close watch should be kept; and if you find the queen-cells do not hatch, a queen should be introduced. Next time, when making increase, we suggest that you take all of the sealed brood and two-thirds of the bees to a new location and

contract the entrance to a three-eighths-inch opening. Then when part of the old bees return to the old hive there will still be enough bees left to take care of the brood and keep it from chilling.

ANSWERS BY MEL PRITCHARD.

Question.—An Italian queen that I introduced, the bees sealed up in the cage with wax and smothered. Could you tell me why they would do that?

William Wall.

Illinois.

Answer.—It sometimes happens that a queen-cell is overlooked, and a virgin queen hatches at or before the time that a queen is caged in the hive for introduction to the colony. In such a case the bees often accept the virgin in preference to the caged queen. Since they can not reach the caged queen to kill her in any other way they will propolize the cage and smother her.

Questions.—(1) A few weeks ago I received a very fine \$6.00 breeding-queen. I am raising some fine cells, but am having quite a discouraging time in getting my cells and virgins accepted, either by nuclei or full colonies, and I should be very grateful to you if you would tell me how to do it successfully and why I have so far failed. First, when I kill a queen and give a cell or virgin, in at least half of the cases the bees raise cells of their own, even tho the cell given them is ripe and ready to hatch or the virgin less than 24 hours old. I give the cell or virgin immediately after killing the queen. Would it be better to wait a while after killing the queen or to take away all unsealed brood so they would have no brood from which to raise a queen? I made 20 nuclei, out of which I got only 6 queens. All the rest have cells of their own, or laying workers. The nuclei I made by dividing a ten-frame hive into three bee-tight compartments, as you describe on page 460 in the A B C and X Y Z of Bee Culture, each compartment holding three frames—a frame of hatching brood and two empty combs. Our nights here are so cool that I prefer to hatch cells in queen-cages in strong colonies; for with the nucleus, cells will chill and not hatch; and the majority of those that do hatch are evidently not accepted by the bees. If I give them a frame of open brood soon after the cell is hatched, they raise cells of their own. In that case can you tell me why the virgin that hatches is not accepted. If you can tell me how to introduce safely a virgin into a nucleus or full colony it would be of great value to me. (2) Will a virgin become fertilized and begin to lay if introduced in a hive or nucleus where there is no brood at all?

H. H. Winger.

Idaho.

Answer.—We find it very difficult to introduce a virgin after removing a laying queen except to a very light nucleus. By waiting 24 hours a virgin not more than six or eight hours old will usually run in at the entrance safely or may be introduced in a Miller cage, leaving the candy exposed so that the bees can liberate her in 24 hours. In introducing to a strong colony it is better to leave them queenless 48 hours. We find that introducing cells in West cell-protectors is more satisfactory. These should be introduced on the tenth day after grafting, and the hive should not be opened until the third day after introducing either a cell or a virgin. A virgin will introduce into a hive where there is no brood, and begin laying as well as or better than where there is brood if the bees are not too old.

IN many localities throuth the North this is the busiest month — the month in which bees store the greatest part of their surplus honey. It is also the season when they are most inclined to swarm, and therefore will require very close attention; for, as previously stated, it is generally true that those colonies that are very large and yet do not swarm are the ones that store the greatest quantities of honey.

Normal Condition This Month.

At this time of the year there should be at least six pounds of stores; the hive should be overflowing with bees, and there should be quantities of worker brood in at least nine or ten combs. Those that have already been given a super, doubtless have considerable brood in both stories by this time, if the queen has had access to both stories as previously recommended.

If, however, the colony is short of stores, seems weak, has too little worker brood, clusters out on the front of the hive, or starts queen-cells, special measures will need to be taken.

Stores.

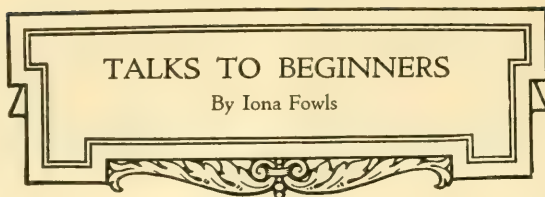
For a colony ever to run short of stores is a disgrace to the beekeeper; but of all times he can least afford to have this happen just before the honey flow. Yet this is the time it is most apt to happen, for brood-rearing is then at its height, and great quantities of stores are consumed, so that if the beekeeper has been at all stingy with his bees the strongest colonies may in a few days be destitute, and the drones, perhaps, be driven from the hives to starve, or larvæ pulled out at the entrances in order that the few remaining drops of honey be saved for the workers. In such an emergency, candy should be dampened and fed to the bees by placing it over the brood-frames, or light-brown sugar can be dampened and placed in a dish on top of the brood-frames. Syrup could be fed; but we do not recommend it, as it is liable to start robbing.

Robbing.

If any sweets are left exposed so that robber bees gain access to them at a time when no honey is coming in, a great turmoil and excitement ensues which is not good for the bees nor for any human being who happens to be on the scene. During a dearth of honey, hives should never be opened for any length of time for fear of starting robbing. If robbing should begin, the hive should be immediately closed, and the entrance should be contracted to a $\frac{3}{8}$ -inch hole so that the colony may more easily defend itself from the robbers trying to enter.

When to Requeen.

All the colonies lacking in bees or worker



TALKS TO BEGINNERS

By Iona Fowls

brood, which the beginner knows wintered well and had plenty of stores throuth the spring, but not enough stores to crowd the brood-chamber, doubtless

have a defective queen, which should be replaced by a good Italian. To do this it is only necessary to find the old queen, kill her, and then introduce a new one by the cage method as given in the directions that accompany her when received from the queen-breeder. Since queens purchased from a distance do not always arrive when expected, the queen should not be killed until the new one arrives. Then the old one may be killed and the new one introduced at the same operation.

Which Colonies Swarm?

Very strong colonies that cluster on the front of the hive or start queen-cells, usually need some attention to prevent swarming. Still, sometimes colonies start queen-cells because their queen is old or defective, and they wish to supersede—that is, raise another to take her place. In such a case one will usually note that fewer queen-cells are started than under the natural-swarming impulse, and also the brood will be scatteringly placed, and often a large proportion of drone brood will be present. Under this condition, all but the best queen-cell should be torn down and the bees allowed to raise another queen to replace the poor one.

When colonies are supplied with good young queens, sufficient ventilation, plenty of super room in which to store honey, and enough room in the brood-chamber for the queen to lay without being crowded by brood or honey, it is usually possible to keep the colony contented and hard at work.

Providing Ventilation.

If all packing has been removed in May, and the entrance-block is now removed, giving an entrance the entire width of the hive, this may in some cases provide all the ventilation needed; but if the weather is very warm it will be found a great help to move the inner cover back a little, leaving a quarter-inch crack at the front of the hive. To give still more ventilation, the supers may also be moved slightly backward or forward to give a bee-space, and the hive itself may be raised from the bottom-board by inserting a small block at each corner. (If raised on blocks it will be necessary, when beginning work at the hive, to blow a little smoke thru this side opening, as otherwise one would be likely to be stung by the sentinels stationed along the crack.)

When producing comb honey, giving ventilation at the bottom-board will probably be all that is necessary; but in extremely hot weather a slight opening may be given next to the cover. When producing comb

honey the supers are supplied with foundation instead of comb, and therefore much more comb-building is necessary than when raising extracted honey. Much of this comb-building is done during the night, and can not proceed unless the supers are kept warm. For this reason no ventilation should be given between supers, and at the top only with great reluctance.

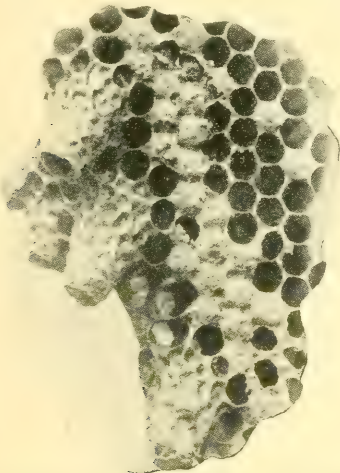
Giving More Room.

Aside from supplying with a good young queen and plenty of ventilation, nothing is more important in the prevention of swarming than giving sufficient room for the queen to lay in the brood-chamber, and enough room for the bees to store in the super.

In the clover regions the honey flow usually starts about 10 days after the first blossoms open. At that time little particles of new wax will begin to appear along the top-bars of the frames. This should be taken as a signal for giving a super to all normal colonies not already supplied.

Production of Comb Honey.

Since bees are sometimes reluctant about entering the small section boxes of foundation, comb-honey men have resorted to vari-



The queen-cells are the large ones at the left, somewhat resembling peanuts.

ous systems for getting the bees started to work above. Probably the best one for the beginner, provided he is able to obtain a few sections of drawn comb from a neighboring beekeeper, is to place such sections of comb in the center or at the sides of the super. Even one at the center of each super would be a great help.

As soon as the first section-super is about half filled, the second may be given, placing it under the first. Again, when this is half filled a third may be given in the same way (beneath the other two). Continue to give other supers as needed. Ordinarily toward the end of the honey flow no more supers should be given, but the bees allowed to finish those already begun. But if a colony becomes so crowded for room at this time that it seems

best to give still another super, it should be placed on top instead of next to the brood-chamber. The bees will then be apt to finish the other supers before doing much work in the last one, and yet will have the room if more room is really necessary.

Until all danger of swarming is over, all colonies, whether run for comb or extracted honey, should be examined every seven or eight days in order to keep them in normal condition. It should be remembered that, during a good flow, colonies store very rapidly, in some instances filling a shallow super in three or four days. They should never be allowed to become crowded, but should be supplied with room a little ahead of their actual needs. It is possible, nevertheless, to overdo the matter and give room too rapidly. This does little harm in the case of extracted honey; for if the end of the extracted-honey season finds the beekeeper with partially sealed honey in his extracting-combs he needs only to leave the honey on the hive until it is ripe, and will then be able to extract and sell it at as high a price as tho entirely capped. But if the comb-honey supers are given so rapidly that the sections are unsealed at the close of the flow, such honey must be sold at a low price because of its unattractive appearance.

On the other hand, there is also danger of giving room too slowly, tho it is necessary to keep comb-honey colonies in a more crowded condition than extracted-honey colonies; still, if too crowded, the colony will build queen-cells in preparation for swarming.

Now, for the beginner who naturally wants a little increase and is willing to sacrifice a part of the honey crop in order to obtain it, we feel inclined to advise him to permit natural swarming and then hive in the usual way as described later. However, if he wishes to get more honey by keeping the working force together, and wishes to take the extra trouble, he may, perhaps, like to try a plan of Dr. Miller, the best comb-honey authority we know.

When a swarm issues he cages the queen and shoves her back into the entrance (from which the swarm and she came and to which the swarm will return) close against the bottom-bars where the bees will take care of her. Any time within the next 10 days he removes the supers and puts the brood-combs into an empty hive. In the now empty hive on the stand he puts two combs of brood next to one side with two or three dummies or chaff division-boards crowded against them, the rest of the hive being left vacant. Above this are placed the supers and cover, and above this a bottom-board, the hive of brood and queen just removed, and another cover over all. The old field bees will, of course, enter what they believe to be their old hive, will find themselves queenless, but will continue storing in the supers. The old queen in the upper hive will keep on laying, but the colony will be so weakened by the loss of field bees that the idea of swarming

will be given up and the queen-cells torn down. Ten days after swarming the lower story is replaced with the upper hive of bees, brood, and queen, and the hive with two frames of brood, which now has a few queen-cells, may be saved for a nucleus and placed on a new stand, taking pains to contract the entrance, so the brood will not become chilled.

Production of Extracted Honey.

If producing extracted honey, and the supers contain foundation, the full set of frames should be used until after the foundation is drawn out. After that, at least one comb should be removed and the extra space evenly divided between the combs. This will give more room for storing honey, and will result in combs nicely bulged and therefore easily uncapped. Super room should be supplied by giving the new super next to the brood-chamber, as in comb-honey production, only more room may be given and thus the danger of swarming may be lessened.

Until a week after the beginning of the honey flow the queen may be allowed access to two stories, keeping brood in both. This gets the bees into the habit of storing above, so that when the queen is confined by the excluder to one story the bees store above more readily. Whenever combs of brood are left separated from the queen by an excluder, the bees frequently start queen-cells on such combs. These queen-cells should be torn down seven or eight days after separating the queen from the brood.

Except when brood is separated from the queen it would seem that the queen-cells should not be started if our directions have been carefully followed. Yet this sometimes happens. In case one finds such queen-cells we suggest the plan given in the last issue. Place on the old stand a hive containing the queen, nine frames of comb or foundation, and at the center one comb with a small patch of eggs and young larvæ, and above this a queen-excluder, supers (two of which contain practically empty combs), and, on top of all, the hive of brood with capped queen-cells torn down. No cover and hive-bottom intervene between the supers and upper hive of brood as in the comb-honey plan. Eight days later move the upper story to a new location and leave with one capped queen-cell, and contracted entrance to prevent the chilling of the brood. The queen-cell left should be the best one—long yet plump, with well-defined corrugations on the sides. To prevent injuring the unhatched queen, queen-cells should be handled carefully, and held in the same position in which they were built on the combs. If no increase is wanted, tear down all queen-cells about eight days after placing above, and leave the brood to hatch and increase the original colony. When applying this plan early, while the nights were still cool, we suggested putting the hive of brood immediately above the excluder; but during the honey

flow, when it is more difficult to prevent swarming, there should be at least two supers of practically empty combs between in order to make the bees of the upper brood-nest feel more queenless, and therefore raise a nicer lot of queen-cells, and also to prevent the nurse bees supplied with royal jelly from going below and starting queen-cells in the lower brood-chamber.

Natural Swarming.

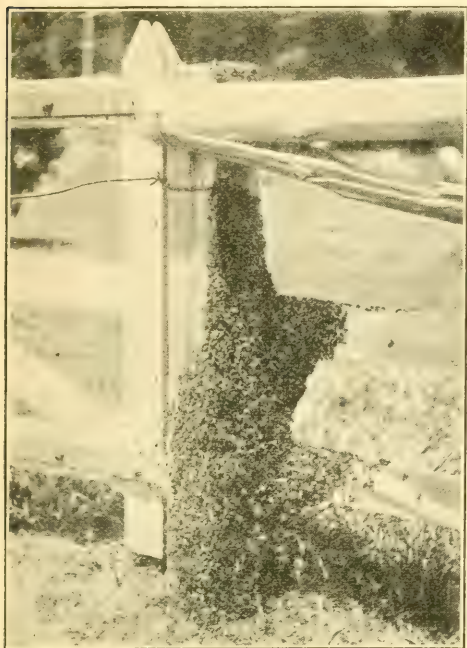
There may be some who desire an easier way of making increase rather than using either method given under the last two headings. For their benefit we shall describe natural swarming and an easy way of hiving the swarm.

Soon after the queen-cells are sealed, the swarm "issues," that is, about two-thirds or three-fourths of the bees, together with the queen, leave the old hive and go to a new home, which quite often is a hollow tree in the woods. If one happens to be near the hive just before the swarm leaves, he may notice an unusual activity of bees running about the front of the hive; and if the hive is opened, there he may find great excitement and a busy rushing of bees here and there in every direction. In a few minutes the bees begin pouring from the hive by the thousands until in three or four minutes the air is filled with a great cloud of humming bees. These swarming bees are very good-natured, since they have filled their honey-sacs with honey, which is partly to sustain them until again able to gather nectar from the fields and partly to convert into comb on arrival at the new home. After flying about for a few minutes they cluster or form in a large ball, usually on a branch of a tree not far from their hive, waiting to make certain that the queen is with them before they leave for their new home, which in most cases has probably been chosen by scout bees sent out several days previously.

If the queen has been clipped she will be found climbing helplessly about on the grass in front of the hive, attempting to join the swarm, which, of course, she is prevented from doing on account of her clipped wings. After caging her in a spiral cage, put her in the shaded entrance of the new hive of combs or foundation which has been placed on the old stand, facing in the same direction as the original hive. The hive should also contain one comb with young larvæ (very important in case of a queen with wings), and above this hive should be placed the supers removed from the old colony, for the new colony will now work with renewed vim, while the old colony will be composed mostly of young bees, and will probably be without a laying queen for as much as two weeks, and will not be in condition to store any surplus for some time.

In a short time the bees will discover that the queen is not with them, and will, therefore, return to the hive. After they have begun running in nicely the queen should be liberated and allowed to run in with the rest.

After the swarm has entered the new hive, the "old" or "parent" colony may be placed close beside the new one, facing in the same direction, and the entrance contracted to a space only large enough for two or three bees to pass at a time. This old colony may be allowed to raise its own queen or the queen-cells may be torn down and a laying queen introduced. In about a week, during the middle of the day, when many bees are



Bees do not always cluster in convenient places on branches of trees where they may be easily shaken off. They may cluster on some unshakable object when it will be necessary to capture them, as described in the next column.

flying, move the old hive to a new stand. Many of the flying bees will return; and, finding their hive gone, will enter the new one. This increases the size of the new swarm and leaves so few bees in the old hive that there is but little danger of an after-swarm. Rather than place the old colony beside the new and then move to a new location in a week or so, some move to a new location at the time of swarming, and prevent after-swarms by tearing down all but one good queen-cell.

At first thought one might wonder that the bees should take the trouble to raise so many queen-cells when but one would be sufficient; but if the one cell should for any reason fail to hatch the colony would be entirely helpless, having no means of raising another. Therefore quite a number are provided; and when the first queen hatches she partly tears down the other capped cells so that the other queens will not hatch; or if two or more hatch at the same time they soon fight it out so that only one survives.

Two or three weeks after the swarm issues, the old colony should be examined for eggs. If none are found, it will either mean that the queen has not yet begun laying or that she was lost in mating, and the colony is queenless. In either case the best thing to do is to give them a frame containing eggs and young larvae. If a queen is in the hive she will probably begin laying all the sooner, because of the presence of the larvæ; and if the colony is queenless the bees will undoubtedly begin queen-cells, in which case a ripe queen-cell should be given them in a cell-protector or else a good laying queen introduced.

In order to have a swarm that is accompanied by a queen with wings, the colony should be shaken into a basket attached to the end of a pole and placed on the ground in front of the entrance. If they do not seem inclined to enter, shaking them on the ground will usually start them. Generally a few of the bees take wing and return to the clustering place, so that it may be necessary to shake them from the tree or bush several times to make certain that the queen is also captured.

Usually bees cluster on the branch of a tree, in which case, if the queen has wings, and it is, therefore, necessary to capture the bees, the swarm may be easily shaken into a basket or other receptacle. When clustered as in the illustration, so that shaking is impossible, the bees may, by means of a soft feather or brush, or perhaps a handful of weeds, be gently brushed down on to a sheet spread on the ground beneath them. The corners of the sheet may then be gathered up and the bees carried to their new location, where the sheet may be again spread down, and the bees allowed to run into their new hive. A little shaking of the edges of the sheet furthest from the hive may perhaps cause them to enter the hive more readily.

Next Talk.

The next talk will explain the harvesting of the honey. It will explain how one may know when either comb or extracted honey should be removed from the hive, and how it may best be done without starting robbing. Also there will be a description of extracting, the arrangement of the equipment, and the various steps in the process. Tho it will not be necessary, still if the beginner can visit an experienced beekeeper and watch him extract, perhaps also helping him if allowed to, he will doubtless pick up additional hints.

Beginner's References.

The beginner will be interested in "The Spirit of the Hive" page 357, but right here we again caution him not to give room so fast that there are a lot of unsealed sections at the end of the honey flow.

We also call the beginner's attention to some of the "Straws" 368, "Siftings" 370, "Side Line Department," page 373, "Two Colonies of Wild Bees," page 379, and "Gleaned by Asking," page 386.

FOR almost if not quite 50 years we have been having visitors here at the Home of the Honeybees; and they come from not only all over our nation; but oftentimes from away across the seas. For many years after the business was started it was part of my work to receive said visitors and pilot them over the premises out in the apiary, as well as thru the different parts of the manufacturing departments. Some friend (I can not remember who it was) once said something like this:

"Mr. Root, sooner or later, when he meets a stranger, asks him three questions, or something equivalent to three questions. First, 'Are you, my friend, a professing Christian? Do you stand up before the world as a follower of the Lord Jesus Christ?' After having received some sort of reply to this first question, the next is pretty sure to be, 'Are you a married man?' After that comes the question, 'Have you some children?'"

In thinking it over of late I do not know but, even tho 50 years have gone by, I still feel like asking the above, in about the order I have given them, of any visitor who cares to see or know more about A. I. Root. I am sorry to say, however, dear friends, that I did not follow the above program, in the order I have given it myself. I got married first, and then waited till there were two or three children given the dear wife and myself; and *then* thru God's providence I began to think "better late than never"; and to make amends I started these Home papers which many of you have been reading for close on to 50 years.

Like most young married people, Mrs. Root and I did not make any plans for children "just yet"; that is, altho of course we intended to have children after a few years we were in no hurry to assume the responsibilities of parentage; but as it often happens, when man proposes, God disposes; and with early prospects of first one little prattler and then another we were almost inclined to rebel.

There is one more text over in Genesis that I wish to quote. It is in the 16th verse of the 3d chapter: "And God said, I will



And God said, Let us make man in our image, after our likeness.—GEN. 1:26.

And the Lord God said, It is not good that a man should be alone; I will make him a help meet for him.—GEN. 2:18.

And God blessed them, and God said unto them, be fruitful and multiply and replenish the earth, and subdue it.—GEN. 1:28.

greatly multiply thy sorrow and thy conception. In sorrow thou shalt bring forth children." But after the little prattler had made his or her advent, and cheered and brightened the household by his or her comical ways, our sorrow turned to gladness; and, dear friends, the gladness has

not only lasted but increased year by year; and that is what I want to talk about after this long preface.

I have told you in the past, or tried to tell you, with what great pleasure Mrs. Root took each little prattler by the hand, and molded and fashioned the new life. Something transpired less than ten days ago that will give you a better glimpse of the dear woman than anything else I can think of.

On our trip from Bradentown, Fla., to our Ohio home, we were obliged to change cars three times; and almost every time we had to make a change there was very little time to do it. In the great city of Cincinnati there were such crowds that she for a little time got lost. Of course you will ask what in the world I was doing that I did not take her arm. Well, I tried to, but she shook me off and declared she was able to take care of herself. Well, when we got into the big city of Cleveland she was lost again. She was right close by me when we were getting off the car. When I got off the step to the car, great crowds were there, but no Mrs. Root. When I began to be worried she made her appearance at the top of the steps; but to my great astonishment and consternation she was trying to get thru the door with a great bundle of something which looked like bedding. I said to myself, "Why, the poor woman has gone crazy, and imagines that all of that stuff belongs to us." But when I caught sight of her face she did not look at all crazy. In fact, she was smiling, and looked particularly happy and joyous. I took the bundle at the bottom of the steps and started to ask, "Why, what in the world, Sue, are you doing with this?" Then right behind her I caught a glimpse of a very little woman lugging a pretty good-sized baby, and then I too began to laugh. I

verily believe that, if the house were on fire, and Mrs. Root were to come across a little woman tugging at a bundle with a baby in her arms, she would take the baby and the bundle first and see to the house on fire afterward. Now, this bundle was not so very small, because I lugged it to the top of three pairs of stairs and was then in such a hurry to "catch up" that I did not half listen to the thanks of the little woman who held the baby.

The moral to this incident I have just been telling is that Mrs. Root has made it her lifework to look after and guide and care for not only her own babies, but, so far as comes within her sphere, the babies of others.

A very good friend of mine who has charge of an important branch office of the A. I. Root Co. visited us not long ago. I have been scolding him for years and years because he does not get married. On his last visit I said, "Look here, my friend, if I had done as you do, these two men, Ernest and Huber, would never have had an existence, and I very much doubt whether there would have been any A. I. Root Co."

Dear reader, do you see the point? Our lamented friend Roosevelt told the world there would be race suicide if men and women did not "*get married*," and, more important still, raise children and "replenish the earth and subdue it," after they did get married.

As the years go, it rejoices my heart more and more to see the dear children, sons-in-law and daughters-in-law, as well as sons and daughters, lift the burdens that keep coming up before me with my failing strength. When I first got on to the idea of an automobile propelled by wind power, some of the sons and sons-in-law said with cheerful alacrity, "Go ahead, father. Get yourself a nice little car and put up the windmill and we will see that there are funds to carry out the experiment." If they did not say it in words, they said it in acts. Huber and his little daughter Catharine (named after the sister of the Wright brothers) recently made a trip to Florida to see the experiment of harnessing the wind. If he does not tell you about his trip himself, I will try to do it later on.

Well, when Mrs. Root and I planned to take the trip home, about May 1, I confess that I felt worried somewhat is regard to the responsibility resting on a man close to 80 years of age for a trip that takes two days and two nights, or a little more, of constant travel. Now, altho I had not said a word, it seems the dear children had the matter in mind; and just

to relieve us of responsibility, and to make us feel safe and avoid our being worried, one of our grandsons volunteered to go down and pilot us home. By the way, I have been told that *he, too* was just wild to see the windmill and electric apparatus. They knew the exact date father and mother expected to arrive in Cleveland, and so Howard Calvert, my grandson, started so as to reach us the day before we took the cars. An accident happened, however, between Tampa and Bradentown. Two steamers that were in the habit of making daily trips were both disabled at about the same time, and the best Howard could do, was to manage so he could reach Bradentown at midnight, the day before we were to start. He had read what I have said about my good friend Kaiser at the Bradentown electric-power house; and before starting to walk to our home, a mile out of town, he walked over to the power house, and, sure enough, Mr. Kaiser was right at his post, and the two "electricians" had a big visit in a very little time, even if it was after midnight. Let me now digress a little.

As we were picking up our stuff that morning, Mrs. Root and I were up unusually early, and had been very busy packing our valises, putting things away, etc., when all at once an apparition was seen at the open doorway. It was a young man apparently just out of bed, his luxuriant head of hair all tangled up, and a broad grin on his face. My first thought was that I had lost my senses, but I finally decided the young man was *not*, after all a "phantasmagoria." Mrs. Root said she had the same feeling, saying that for a while she was frightened. Finally I managed to say, "Howard Calvert! How on earth did you come here at this time of the night?"

"Why, I slept all night in that wind electric automobile. I got in so late that I knew it would break your rest when you need it so much before your long trip, and so I stayed out there. I saw the electric light which I had been so anxious to see run by wind power, and now I am here to go back with you and look after your wants and needs."

Then we thanked God again, not only for the dear children he in his infinite love had sent us, but also for the ten equally dear grandchildren. And that is not all. This occasion seems to be the right and proper one to introduce to you Howard Calvert, 28 years of age, and the father of two beautiful little girls—great-grandchildren of A. I. Root and his wife. Howard not only lifted the burdens—three great heavy valises—but he made the arrangements for checking the trunks, getting the tickets,

various transfers, looking after mishaps that almost invariably occur, and got us home in such good shape that Mrs. Root never had a bit of car sickness—something she is greatly subject to; and I think it was perhaps the first trip she ever made between Florida and Ohio without more or less of it.

Now, my friend—yes, all who see these pages, again I say to you personally, no matter who you are, where you are, how old or how young, if you are not already a follower of the Lamb of God who taketh away the sin of the world, make it your very first duty to commence now, this very minute, by acknowledging the great Creator who made you in his own image—commence right *now* to acknowledge him as your heavenly Father, and put your trust in that "Son of God," of whom He said from the heavens, "This is my beloved Son in whom I am well pleased." Make this Son your daily confidant, your guide, and your friend.

In regard to the second, I have been cautioned about advising *everybody* to get married. Of course, it will be taken for granted that such advice is to people of suitable age to be married. As a rule I would suggest that both should be very close to or past twenty; and I do not believe, while I think of it, that I would advise a good Christian woman to marry an intemperate man with the view of making him better. Let him get "better" first, and let sufficient length of time elapse so that he can prove that he really *is* better. Let him lay his intemperate habits at the feet of the dear Savior "who taketh away the sin of the world." Perhaps something should be said about marrying a man or woman whom you do not love. I would suggest it is safer to marry a good professing Christian whom you *think* you do not love than to marry an unchristian man that you think you love. And here is a point: One of Satan's great schemes is to persuade those already married, that they do not love each other. This is not only humbug and nonsense, but it is criminal. I think I am safe in saying you can love the companion you already have if you will only set about it. Do not ever let Satan even *whisper* to the contrary. By the laws of God and man you are bound to stick fast to your oath taken before God and men, when you two were united. Do not let such a thought of divorce even get in sight.

Lastly, be fruitful and multiply. Do not be satisfied with one child or two. Give to the world men and women who fear God and who will be a blessing to humani-

ty. Your old friend, A. I. Root, not only did find his burdens lifted by his grandson Howard, but our long trip together, gave me a chance of becoming better acquainted with him than I had ever been before. To give you a little glimpse of him I give below a clipping from the *Hummer*, a little periodical of which he is the editor:

At last we are glad to be able to say that we have seen A. I. Root's electric windmill. We saw it at midnight for the first time down in Bradentown, Florida, and it was faithfully turning the little electric generator, storing up juice in the electric automobile battery, and converting wasted energy into useful power, light, and heat—another case of a dream come true! The vision of the man who has persisted in making his dream come true is a prophecy of the future, a solution to the problem which future generations will have to face when the coal supply is used up in this country, when the gas supply is exhausted, and when the great oil wells have been pumped dry.

Then, when these are all consumed, humanity will look to powers in the air, the gentle breezes, and the mighty trade winds. God has always provided, and he always will provide as long as the world lasts. By utilizing these forces which have been ever present but which have been but little used, save for pumping water, we shall be able with but small initial outlay to have our own private power plants in our own back yards. We then can get our lights and heat from the air, run our automobiles from wind-made electricity, and probably do many other things just as A. I. Root is doing with his electric windmill in Florida. As he predicted the success of the Wright Brothers' airplanes several years before aviation was perfected, so will the success of his prophecy regarding wind power be assured in years to come—just how many years we will not venture to say. But as on that balmy Florida midnight we looked up at the big wheel, turning, turning, ever turning, generating electricity enough to light several lights, and yet turning with such a slight breeze stirring that it was scarcely perceptible where we stood on the ground, we knew then that the electric windmill was a success. The voice of the night told us, and that voice never is wrong.

FROM SAN DIEGO, CAL., TO JACKSONVILLE, FLA., IN 19 HOURS AND 15 MINUTES.

I have mentioned one or more times that it was my great privilege to be with the Wright brothers when they first made their flying machine start out and turn around and come back to the starting place. Therefore you can realize with what interest I note progress in flying as the years go by. While flying machines were first used for war purposes, somehow I did not feel like keeping track of them as much as I do now when war is at an end. Below is a clipping from the *Cleveland Plain Dealer*, dated from Fort Worth, Texas, April 18:

Maj. T. C. McAuley, commander of Taliaferro field, who has flown from coast to coast in 20 hours at an average speed of 137 miles an hour, arrived here safely this morning from Jackson, Miss., where he spent last night. He landed in his plane at 11:30 a. m.

Maj. MacAuley flew 5,500 miles in 44 hours and 15 minutes. His flying time across the continent

from San Diego to Jacksonville was 19 hours and 15 minutes, setting a new record.

Of this distance, 880 miles, from Tucson, Ariz., to Sweetwater, Tex., were covered without a stop. He used a de Havilland plane with a Liberty motor.

The motor, according to the airman, never missed a stroke, and the only work done was to remove two dirty spark-plugs.

Years ago Mrs. Root and I enjoyed the privilege of going by rail from San Diego to Jacksonville. So far as I can remember it took nearly a week. Well, from the above clipping it would seem *possible* for one to get an early breakfast in San Diego and get a late supper in Jacksonville all in one and the same day. May God be praised for what has come to pass, or perhaps, rather, for what is coming to pass.

TOBACCO FOR BEEKEEPERS.

The letter below from a veteran apiarist requires a little preliminary explanation. About 50 years ago there was a little meeting of beekeepers at an apiary out in the country. One of the friends used the smoke from a cigar to drive the bees he was handling. Some of the boys present declared they were going to learn to smoke so as to have the smoke always handy as did this operator. I protested somewhat as follows:

"No, no boys. Do not learn to smoke cigars nor to use tobacco in any form. If you will give me your promise, and let me put it in print in GLEANINGS (just started), I will make you a present of one of my newly invented bellows smokers."

They gave me the pledge. It was printed in GLEANINGS with the offer to do likewise with any young beekeeper who would give me a like promise in writing. Over 1,000 pledges came in. I supposed, when I made the offer, that it was going to cost me quite a little sum of money, which was not very *plentiful*, I assure you, at that time. But to my great surprise and astonishment the offer was commented on in the daily papers as a queer sort of eccentricity. It not only advertised *bee culture*, but it resulted in the sale of over 20,000 of the new bee-smokers in less than a year. Now you can read the letter below:

Friend A. I. Root:—I want to give you a little of my experience with tobacco. When I was a boy, just after the Civil War, I started to use tobacco—and I certainly did use it. I was taking GLEANINGS at the time you made your offer of a smoker to those that would quit using tobacco. I did not have much money at the time and I needed a smoker very much, but the hankering I had for tobacco made me forget all about trying to get a smoker in that way. So time rolled along until 12 years ago this summer, when I quit. I was using at that time a quarter-pound plug a day and six to eight cigars, besides smoking a pipe nearly all the time. I will tell you why I quit so suddenly. I went blind—could not see two feet ahead of me—so I went to Saginaw, Mich., to see an eye specialist.

After he had got thru the examination, which

took him all day, he said that the cause of my trouble was in using either too much whisky or too much tobacco. I told him I did not drink whisky, but did use lots of tobacco. This was in the spring of the year, and it took him all summer to fix me up so that I could see again. I lived about 18 miles south of Saginaw at the time and had to make two trips a week to see him. Now you can see what my experience has been with tobacco. The name of the specialist that I went to see is Dr. Slack. If any tobacco fiends see this, they can write or go to see the doctor, and I think he can cure them.

Aitkin, Minn., Apr. 7, 1919.

WM. CRAIG.

"SHELLSHOCK" OR CIGARETTES—WHICH CAUSES THE TROUBLE.

The following, clipped from the *Sunday School Times*, is furnished by Margaret Wintringer, Secretary of the National Good Citizenship Movement:

When in England I visited a noted sanatorium whose head physician is a specialist on nervous troubles. In discussing the alarming extent of insanity developed in the army, this doctor declared that one out of every ten of the British soldiers invalided was insane, and he stated that he believed the insanity was quite as much due to the excessive use of the cigarette as to shellshock. The doctor claimed that it was a great misfortune that at a time when the soldier needed strong and steady nerves his nervous force was weakened by the cigarette, and even in these early days of reconstruction this same physician's prophecy that the almost universal use of the cigarette by the soldiers would leave a war-time heritage of insanity to every nation is being fulfilled.

Some of our most eminent American physicians have not hesitated to declare that the fatality of the recent "flu" epidemic in the training camps was caused by the weakening effect of the cigarette upon the heart and lungs of the victims. Army nurses in some of our largest camps have told me that, without exception, the excessive cigarette smokers were unable to withstand the disease.

A KIND WORD, NOTWITHSTANDING OUR RECENT HOSTILITIES.

I do not know, friends, whether you feel as I do; but whenever I see or hear the severe criticisms that are now so frequent in regard to Germany *as a whole*, I feel pained. Some of the best friends I have in the whole wide world are German; and I can not help feeling, and have felt all along during the war, that, notwithstanding the terrible acts of Germany as a nation, there are kind and loving hearts there as well as in any other part of the earth. I tried to think it possible that many of these people—perhaps the greater part—were helpless during the terrible conflict that we now hope is over and over for ever. Now you may read the letter below:

I wish to subscribe again to your paper, GLEANINGS IN BEE CULTURE. Since the beginning of hostilities between America and this country I have been unable to obtain any numbers. As I missed your paper very much I would ask you kindly to begin sending it as soon as postal communication permits. The amount due for the subscription for the remaining year I will send by postal order.

I must add that I pray to God that I may not find a change in the editorship of the Home department, but that A. I. Root is still enjoying good health.

P. M. FERRO.

Gravosa, Dalmatia, Europe. Feb. 19, 1919.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Derooy Taylor Co., Newark, N. Y.

FOR SALE.—Extra quality buckwheat extracted honey in 60-lb. cans. J. W. Hosie, East Aurora, N. Y.

FOR SALE.—Michigan's Best extracted honey in packages to suit; white clover, raspberry, milkweed, buckwheat. A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE.—Clover, heartsease, No. 1 white comb. \$6.00 per case; fancy, \$6.50; extra fancy, \$7.00, 24 Danz. sections to case; extracted, 120-lb. cases, 25c per pound. W. A. Latshaw Co., Carlisle, Ind.

FOR SALE.—30,000 lbs. of No. 1 extracted clover honey at 17c per lb., and 30,000 lbs. of No. 1 aster honey at 15c per lb., both of extra light color, heavy body, and fine flavor. W. B. Wallin, Brooksville, Ky.

HONEY AND WAX WANTED

Small lots of off-grade honey for baking purposes. C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

WANTED.—Section honey. Correspondence so J. E. Harris, Morristown, Tenn.

Beeswax wanted. Highest prices paid. State quantity and quality. E. S. Robinson, Mayville, N. Y.

WANTED.—Comb and extracted honey, also beeswax. Send samples. C. S. Fryer, 386 Halsey St., Portland, Ore.

BEEWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED.—Comb and extracted honey, car lots and less. Mail sample, quantity, and price. W. Morris, Yonkers, N. Y.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations. M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted. Hoffman & Hauck, Inc., Richmond Hill, N. Y.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston. M. V. Facey, Preston, Minn.

BEEWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

FOR SALE

HONEY LABELS.—Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

SEND TODAY for samples of latest honey labels. Liberty Pub. Co., Sta. D, Box 4E, Cleveland, Ohio.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

FOR SALE.—Drawn combs—brood and extracted, 10c each. Theodore Fluegge, 33 No. Elgin Ave., Forest Park, Ills.

FOR SALE.—New and slightly used hives and supers, sections, extracting combs, etc. Price satisfactory. R. Hibbard, Calcium, N. Y.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies. R. & E. C. Porter, Lewistown, Ills.

SPECIAL SALE.—One-story 8-frame dovetailed hives, in flat, with telescope $\frac{3}{4}$ wood covers, in packages of five at \$10.00 per package. A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE.—Apiary of 45 colonies, whole or part, equipped for comb or extracted business, all in fine condition. Stop 62, North Ridgeville, Ohio. P. O. address, W. R. Bartlett, Elyria, Ohio.

FOR SALE.—Comb foundation at prices that will save you money. Wax worked for cash or on shares. Send for price list. E. S. Robinson, Mayville, N. Y.

FOR SALE.—If you wish to know where to save money on bee supplies send for our new price list. It may be worth your trying. H. S. Doby & Sons, St. Anne, Ills.

FOR SALE.—Second-hand 60-lb. cans, two to the case, 50c per case f. o. b. New York. Also second-hand maple-syrup cans at 10c each. Hoffman & Hauck, Inc., Richmond Hill, N. Y.

FOR SALE.—Good second-hand 60-lb. honey cans, two to the case at 60c per case, f. o. b. Milwaukee. Terms cash with order. E. R. Pahl & Co., 120 Huron St., Milwaukee, Wis.

FOR SALE.—About 40 new and used hives, 10-frame Hoffman; 1200-lb. honey tank; 2-frame Novice extractor. Oscar Carlson, Box No. 398, Sandwich, Ills.

FOR SALE.—Six-inch foundation-mill with 2-inch rolls in good condition; also 17 lbs. of thin super foundation, size $3\frac{3}{4}$ in. x $15\frac{1}{2}$ in., in 2- and 3-lb. boxes, price 80c per lb. W. D. Wright, Altamont, N. Y.

FOR SALE.—Mr. Beekeeper of Alabama, Florida, Georgia, Louisiana, Mississippi, and Tennessee, send me a bill of your wants of bee supplies and let me make you good prices on the same. M. Bates, Greenville, R. D. No. 4, Ala.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 36c in cash and 38c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE.—Cowan extractor that never has been used. Two-frame machine, \$25.00. Mann Bone Mill—advertised in May. A few more 4-frame nuclei in June at \$5.00 each, without queens.

B. F. Averill, Howardsville, Va.

FOR SALE.—25 metal-roof covers, 25 reversible bottoms, 100 deep extracting-bodies without frames, all dovetailed, 10-frame size, Lewis ware, spotless, perfect, painted well two coats white, freight prepaid, \$125.

B. W. Wells, Appleton, Wis.

AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the **AUTOMOBILE DEALER AND REPAIRER**; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline-engine repairs. \$1.50 per year. 15 cents per copy. Canadian subscriptions \$1.50. Postals not answered. Charles D. Sherman, 107 Highland Court, Hartford, Conn.

WANTS AND EXCHANGE

WANTED.—Brood-foundation mill.

W. A. Latshaw Co., Carlisle, Ind.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax.

Superior Honey Co., Ogden, Utah.

WANTED.—Used hives and supers, foundation mills, extractors, bees, and bee equipment. State lowest cash price wanted.

W. A. Latshaw Co., Carlisle, Ind.

WANTED.—To exchange 1915 model Harley-Davidson motorcycle in A-1 condition for bees, honey, or part cash. No. 3 Fox typewriter, same terms, or \$25 cash.

H. E. Coffey, Box No. 246, Sealy, Texas.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 38c cash, 40c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival.

The A. I. Root Co., Medina, Ohio.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1919 catalog. We will buy your share of the wax for cash or will work it into foundation for you.

Dadant & Sons, Hamilton, Illinois.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 84 Courtland St., New York.

Hardy Italian queens; one, \$1.00; 10, \$8.00. W. G. Lauver, Middletown, Pa.

FOR SALE.—1919 Golden Italian queens, price list free. Write, E. E. Lawrence, Doniphan, Mo.

Queens on approval. Bees by package or colony. A. M. Applegate, Reynoldsville, Pa.

Golden Italian queens, untested \$1.00 each, six for \$5.00. E. A. Simmons, Greenville, Ala.

Get my price list on queens and bees, the best three-band and five-band honey-gatherers.

H. A. Ross, Evansville, Ind.

FOR SALE.—Golden Italian queens, untested, \$1.00 each; tested, \$2.00.

J. F. Michael, Winchester, Ind.

Italian queens of "Windmere" for sale; untested, \$1.00; six for \$5.50; tested, \$1.50 each. Prof. W. A. Matheny, Ohio University, Athens, Ohio.

FOR SALE.—Leather-colored untested Italian queens, June and July, \$1.00 each, 6 for \$5.00.

J. M. Cutts, Montgomery, R. D. No. 1, Ala.

PHELPS' GOLDEN QUEENS will please you. Mated, \$2.00. Try one and you will be convinced. C. W. Phelps & Son, Binghamton, N. Y.

THREE-BAND Italians only. Untested queens, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00. H. G. Dunn, The Willows, San Jose, Calif.

"She suits me" Italian queens, \$1.15 each from May 15th to Oct. 15th; 10 or more, \$1.00 each.

Allen Latham, Norwichtown, Conn.

FOR SALE.—Indianola Apiary offers Italian bees and queens; tested, \$1.50; untested, \$1.00.

J. W. Sherman, Valdosta, Ga.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, \$1.00; mated, \$2.00.

C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Golden Italian queens ready April 15; \$1.00 each; \$10.00 per dozen.

W. W. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—Three-banded Italian queens, untested only, one, \$1.50; six, \$8.50; dozen, \$16.00. P. C. Chadwick, 725 E. High Ave., Redlands, Calif.

FOR SALE.—3-band and Golden queens and nucleus. Queens, 1, \$1.50; 6, \$7.50.

Allen R. Simmons, Claverack, N. Y.

FOR SALE.—Bright Italian queens at \$1.00 each, \$10.00 per doz. Ready April 10. Safe arrival guaranteed.

T. J. Talley, R. D. No. 4, Greenville, Ala.

ITALIAN QUEENS carefully raised from some of the best stock. Just hatched, 75c; untested, \$1.00. Orders booked now for summer and fall.

James McKee, Riverside, Calif.

FOR SALE.—Three-band Italian queens ready June 1. Untested, each, \$1.00; 12, \$10.00; 100, \$80.00. Satisfaction and safe arrival guaranteed.

A. E. Crandall & Sons, Berlin, Conn.

FOR SALE.—Business-first queens. Laying untested queens, \$1.00 each; select untested, \$1.25; tested queens, \$2.00; select tested, \$2.50. Price list for asking. M. F. Perry, Bradentown, Fla.

GOLDENS THAT ARE TRUE TO NAME. Untested queens, each, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00.

Garden City Apiaries, San Jose, Calif.

FOR SALE.—Golden Italian queens of an improved strain; the bee for honey, hardiness, gentleness, and beauty. Untested, \$1.00; tested, \$2.00.

Wallace R. Beaver, Lincoln, Ill.

FOR SALE.—Golden Italian queens, untested, 85c; 6 for \$4.75; 12 for \$9.00. Select untested, \$1.00; 6 for \$5.50; 12 for \$10.00. Tested, \$1.25; select tested, \$1.50; extra select tested, \$2.50. No foul brood. No bees for sale.

D. T. Gaster, Randleman, R. F. D. No. 2, N. C.

FOR SALE.—North Carolina-bred Italian queens of Dr. C. C. Miller's strain of three-band Italian bees. Gentle and good honey-gatherers. May 1st until July 1st, untested, \$1.25 each, \$12.00 per doz.; tested, \$1.75 each, \$18.00 per doz.; select tested, \$2.25 each. Safe arrival and satisfaction guaranteed. L. Parker, Benson, R. D. No. 2, N. C.

FOR SALE.—Good Italian queens, tested, \$1.50; untested, \$1.00; 1-lb. package, \$3.00; 2-lb., \$5.00; nuclei, 2-frame, \$4.00; 3-frame, \$5.50.

G. W. Moon, 1904 Park Ave., Little Rock, Ark.

FOR SALE.—Full colonies in new standard eight-frame hives, each with tested Italian queen, full sheet wired combs, hustlers, easy to handle; no disease here. J. Ford Sempers, Aikin, Md.

FOR SALE.—Three-banded leather-colored Italians, of the celebrated Moore strain with tested queens, reared last season, in eight-frame Langstroth hives, at \$12.00 a colony.

John Hutchinson, Lake City, R. D. No. 2, Mich.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$2.00, 6 for \$7.50.

Wm. S. Barnett, Barnetts, Va.

FOR SALE.—Golden Italian queens which produce gentle yellow bees, the hardest workers we have known, \$2.50 each. When you wish to improve your stock always buy the very best. Wildflower Apiaries, Trust Bldg., Little Rock, Ark.

Three-banded Italian queens and bees by the pound, also nucleus, in Root's shipping-cases, if preferred, or buyer furnish own cages. Send for price list. J. A. Jones & Son, Montgomery, Ala., R. D. No. 1, Box 11a.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, \$1.00; mated, \$2.00.

C. W. Phelps & Son, Birmingham, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May and June, untested, each, \$2.00; six, \$7.50; doz., \$14.00; tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnetts, Va.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, \$1.25; 12 queens, \$14.00. One pound of bees with queen, postpaid, \$6.00. Safe arrival and satisfaction guaranteed.

M. Bates, Greenville, R. D. No. 4, Ala.

FOR SALE.—A limited number of bees and queens for May delivery from either home apiaries or South Carolina. Safe arrival guaranteed if shipped by express. Parcel post shipments at buyer's risk. We invite correspondence as to details and price. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Three-banded Dr. Miller and Walker Italian queens, ready in May, untested, \$1.25 each; 6 for \$7.00; 12 for \$12.00; select \$1.50 each; 6 for \$8.00; 12 for \$15.00; tested, \$2.50; select tested, \$3.50 each. Orders filled in rotation. Queen circular and testimonials sent free. Curd Walker, Queen-breeder, Jellico, Tenn.

HOLLOPETER'S Italian queens ready in June, untested, one \$1.75; six, \$9.00; July, one, \$1.50; dozen, \$15.00. Quantity price on application, delivery after July 10. These prices guarantee you safe arrival of really high-grade Italian stock, more efficient service and wings clipped when desired. J. B. Hollopeter, Rockton, Pa.

One of the best queen breeders in the United States is now raising queens for us from selected leather-colored Italians. We offer warranted queens at \$1 each or \$90 per hundred. Tested queens, \$2 each. Satisfaction and safe delivery guaranteed. Queens ready now for immediate delivery. Order now as our supply is limited. The Foster Honey & Mercantile Co., Boulder, Colo.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.

H. G. Quirin, Bellevue, Ohio.

FOR SALE.—Three-band Italian queens. Untested queen, \$1.25; six, \$6.50; twelve, \$11.50. Tested queens, \$2.50 each.

Robert B. Spicer, Wharton, N. J.

FOR SALE.—Italian queens, golden, and three-banded, bred from best selected stock. Untested, each, \$1.00; 6, \$5.00; 12, \$10.00; select untested, \$1.50 each. Satisfaction guaranteed.

G. H. Merrill, Liberty, S. C.

NUCLEI.—One or two carloads, or less, 2- and 3-frame, July 1st delivery, \$4.00, \$5.00, and \$6.00 with young Italian queens. Write for terms and particulars.

Co-operative Honey Producers, Overton, Nev.

Victor's three-banded Italian queens of superior quality. All my queens reared by the best method known, from mothers that produced 240 lbs. of surplus honey last season. \$1.00 each straight, from June 1 to Sept. 1.

Julius Victor, Martinsville, N. Y.

HELP WANTED

WANTED.—Young man to care for about 80 hives of bees and help with garden work. Man with some bee experience. State experience and wages required. Good board.

F. C. Lalor, Barrington, Ills.

WANTED.—Experienced beeman and one helper. Fast workers and able to do heavy work. Prefer young men experienced in handling auto trucks. State all particulars in answering and wages wanted.

Ernest W. Fox, Fruitdale, S. D.

WANTED.—One experienced man, and students as helpers in our large bee business. Good chance to learn. Modern equipment and outfit, including auto truck, located near summer resorts. Write, giving age, height, weight, experience, reference, and wages wanted.

W. A. Latshaw Co., Clarion, Mich.

SITUATIONS WANTED

WANTED.—Experienced beekeeper wants employment in an apiary in U. S. or Canada. Send letter, no telegram.

Morris F. Laughlin, Albin, Wyo.

WANTED.—Work in apiary by single man 27 years old, good health and character, and some experience. Wages \$50.00 per month and board with railroad fare.

Wm. R. Lindsey, Buckner, R. F. D. No. 1, Ark.

MISCELLANEOUS.

Highest prices paid for old used postage and revenue stamps. A. Arnold, 1482 Broadway, New York.

FOR SALE.—Silver Spangled Hamburg eggs, and fine rare old Paganini violin.

Elias Fox, Union Center, Wis.

PRINTING SPECIAL.—100 letterheads, 100 billheads, 100 cards, 100 envelopes, \$1.90. Send for samples. Hawthorne Press, Yonkers, N. Y.

E. D. Townsend, the present owner of the *Domestic Beekeeper* bought beekeepers' supplies for the National Beekeepers' Association for several years. He is now buying for the subscribers of the *Domestic Beekeeper* at the same low manufacturers' price. Listen now what he has got up his sleeve: Any GLEANINGS' subscriber buying five dollars' worth of supplies thru the *Domestic Beekeeper* at catalog price, and sending along an extra dollar to pay for a year's subscription to the *Domestic Beekeeper*, will get in return a rebate check for a dollar, leaving the year's subscription to the *Domestic Beekeeper* absolutely free to you. Of course, if your order for supplies is larger than five dollars, you

will get a correspondingly larger rebate check on your order. One of our subscribers got a rebate check of \$40.00 on his order of supplies last month, March. It was just like getting money from home to him, as he sent us the same money he would have had to pay if he had bought thru the regular dealer in beekeepers' supplies. More and more, close buyers of beekeepers supplies are investigating the buying facilities of the *Domestic Beekeeper*. A word to the wise should be sufficient to cause you to send your next order for beekeepers' supplies to the *Domestic Beekeeper*, Northstar, Michigan.

NOTICE TO CALIFORNIANS.—This is to inform our customers that Mr. H. J. Bostwick of the Los Angeles office, an experienced business man, and one who was formerly connected with the A. I. Root Company at Medina, O., has been appointed to succeed Mr. W. A. Rafael, who resigned. Mr. Bostwick formally took charge of the office May 1st, 1919. Owing to the removal of our manufacturing plant into our own permanent headquarters at 1824 E. Fifteenth Street, Los Angeles, Cal., we were greatly delayed in filling our orders. The change took place just after the signing of the Armistice and it was almost impossible to get expert help to install old and new machinery in the new plant. We are pleased to inform our customers that we are now turning out as fine goods as were ever made and fully up to the standard of Root quality at Medina. We invite you to call at our office either at 1824 E. Fifteenth St., Los Angeles, or 52-54 Main St., San Francisco, Cal., where we shall be pleased to show you the quality of the goods turned out in our brand new plant. Thanking you for your past favors and hoping we may have the privilege of serving you further with goods that are up to date and ready to ship on short notice, we are,

The A. I. Root Company of California.



The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 10¢ to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

QUEENS

QUIRIN'S IMPROVED SUPERIOR ITALIAN BEES AND QUEENS. THEY ARE NORTHERN BRED AND HARDY. TWENTY-FIVE YEARS A QUEEN-BREEDER

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested ...	1.50	8.00	15.00	1.00	5.50	10.00
Tested .	2.00	10.00	18.00	1.50	8.00	14.00
Select tested	2.50	14.00	25.00	2.00	10.00	18.00

Breeders, the cream from our entire stock of outyards, \$5 each. Usually all queens can be sent promptly after June 10th.

Breeders, select tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

Reference—any large supply dealer or any bank having Dun's reference book.

H. G. Quirin, Bellevue, Ohio

PATENTS Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.
Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

IF YOU WANT STRONGER BEES AND MORE HONEY, LESS TROUBLE AND MORE MONEY USE

The E-Z-Way Bee Feeder



Feed your young swarms and weak colonies at once. This feeder is constructed out of high-grade material, and provided with a removable end-slide or door over the unbreakable transparent window that enables you to see the bees at their busy work. This is a novel feature not found in any other feeder. It is trouble-proof, sting-proof, robber-proof, and does not disturb the bees in feeding. A child can safely operate the E-Z-Way Feeder, it makes the work a pleasure for young or old, easily attached to any patent hive, box, or round gum, a small notch or hole in the outer rim or frame of the bottom-board, two screws placed, and your hive is ready for the E-Z-Way Feeder. It is simplicity and durability combined and will last a lifetime. Use any quart or half-gallon standard Mason Fruit Jar in connection with the Feeder; the syrup is fed thru a special cap on the atmospheric method. Attachments for three hives, instructions for using, feeding, and making the syrup are with each feeder. Bees can not escape thru the feeder when the jar is re-

moved or the door is up; any one can operate it that can carry the syrup jar. No difference how many feeders you may have, it will pay you to order this one at our risk, under our 30-day money-back guarantee. A trial will prove its value to you. Price \$1 or six for \$5. Postpaid to any address in the United States. If your dealer does not have it, remit by money order, cash or stamps to

THE HOLDEN MANUFACTURING COMPANY, CLARKSBURG, W. VA.

Our Food Page—Continued from page 400.

moderate oven until the meringue is set and lightly browned.

POPOVERS.

1 cup milk $\frac{1}{2}$ teaspoon salt
1 cup sifted flour $\frac{1}{2}$ teaspoon melted butter
1 egg

Place iron gem pans in the oven and heat while preparing the popovers. Put all the ingredients in a mixing bowl and beat with a Dover egg beater very thoroly. Oil the hot irons and half fill them with the mixture and bake in a moderately quick oven. The heat should be decreased after the first ten minutes. Serve with butter and honey. They may be used as a dessert by dropping a piece of fruit in each one before putting in the oven. They should bake from 30 to 40 minutes, depending upon the shape and size of the irons. Do not attempt to bake them in tin if you do not wish to lose your temper as they stick to tin closer than a brother.

SPONGE CAKE.

1 cup sugar 2 tablespoons lemon
6 eggs juice
1 cup sifted pastry $\frac{1}{2}$ teaspoon salt
flour

Separate the eggs, beat the yolks thoroly, sift in the sugar and beat until creamy and

(Continued on page 402.)

"Special Crops" A high-class illustrated monthly journal devoted

to the Growing and Marketing of Ginseng Golden Seal, Senega Root, Belladonna, and other unusual crops \$1.00 per year. Sample copy 10c. Address

Special Crops, Box G, Skaneateles, New York

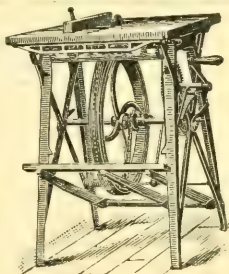
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This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

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MECHANIC FALLS, MAINE

From 1897 to 1919 the Northeastern Branch of The A. I. Root Company

Prompt and Efficient Service

BECAUSE—Only Root's Goods are sold. It is a business with us—not a side line. Eight mails daily. Two lines of railway.

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Complete Line of**Beekeepers' Supplies**

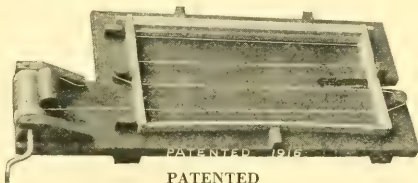
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F. Coombs & Sons, Brattleboro, Vt.

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. **THE BEST LIGHT CO.**
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**Wright's Frame-Wiring Device**

Most rapid in use. Saves cost of machine in one day. Tighter wires; no kinks; no sore hands.

G. B. Lewis Company, Watertown, Wisconsin

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A.T. SPITZER, Pres.
E.R. ROOT, Vice Pres. E.B. SPITZER, Cash.

MEDINA, OHIO

Our Food Page—Continued from page 401.

then beat in the lemon juice. Beat the whites of the eggs with a wire whisk, as there is more volume in that way, fold the whites carefully into the first mixture and then fold in the flour which has been measured after once sifting and then sifted two or three times. Bake in an ungreased tube cake pan in a slow oven about 40 to 50 minutes and invert on a wire cake cooler until cold.

RHUBARB PUDDING.

1 qt. rhubarb cut small	2 teaspoons baking
about 1 cup sugar or	powder
honey	1 tablespoon shortening
1 cup sifted flour	$\frac{1}{4}$ teaspoon salt
	Milk

Bake the rhubarb and sugar in a covered glass or earthenware dish until tender. Make a biscuit dough of the other ingredients and drop from a teaspoon over the hot fruit, return to the oven and bake until the crust is done and delicately browned. Serve the biscuits inverted with the fruit over them and with butter or thick cream. If tender, red stalks of rhubarb are used, this makes a very pretty dessert. Honey may be used instead of sugar, but to most people the combination of flavors is not pleasant.

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1919 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

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17,000 Leader Churns, in use all over the country, have removed the dread of churning day by saving time and labor. They make more and better butter; 5000 unsolicited testimonials. A. N. Hollis, Lawrenceburg, Tenn., says: "Churning was a burden until we got the Leader. Now the children c y to churn. We can churn in 3 or 4 minutes." Special dash—steel frame—light weight—easily cleaned.

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Sold under two plans. Simply order a trial churn now, without sending any money; then, when satisfied at end of thirty days, remit the price shown below, or take orders from your friends and let your commissions pay for your churn, thus securing your Leader Churn Free.

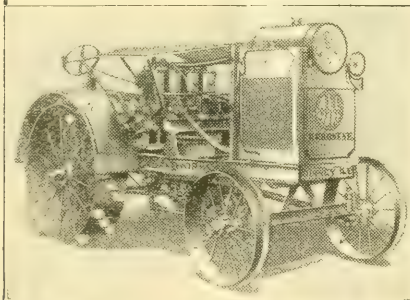
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Send No Money Order direct from this Ad checking size of Churn wanted. You pay express charge only. Nursery agents or farmer agents take trial orders. We deliver and collect; no money needed.

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*Light and Powerful
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**Five Years' Successful Service
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GOLDEN AND 3-BANDED STRAINS

The demand for Our Famous Disease-Resisting Honey-Gathering Hustlers is greater than ever before. Send for circular and price list. ❖ ❖ ❖ Book your order now.

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General Agents in Michigan
for The A. I. Root Company

This Means That

- From us you get bee supplies of the highest quality.
- Our prices are identical with theirs.
- You get immediate shipping service from the center of Michigan.
- We pay you Root prices for Beeswax at Lansing.
- The Root aim is our aim, that of serving the interests of Michigan beekeepers in the best possible manner.
- We want to send you a copy of our 1919 catalog. A copy of the "Suburban Beekeeper's Outfit" for the asking.

M. H. HUNT & SON

510 NORTH CEDAR ST.
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IF GOODS ARE WANTED QUICKLY SEND TO ST. LOUIS

Indications just now are very favorable for a good season; but we are, of course, at the mercy of weather conditions. A good season means an excessive demand for the line which we handle, and we mention this, urging our friends to place their orders before the goods are really needed, that none may be disappointed.

WE CARRY ROOT'S GOODS

and sell at their prices; and considering this as a shipping-point, we can save you time and freight by having your orders come to this house. If you are new to the business we should like to explain that Root's goods are the very best that can be produced. If you have been using THE ROOT LINE you will recognize the truthfulness of the above and will want more of the same goods. Promptness in filling orders is the motto here. We also give small orders the same careful attention that is given to large orders. Let us have the pleasure of mailing you our free catalog.

BLANKE SUPPLY & MFG. COMPANY
ST. LOUIS, MO.

PLANT IN JUNE FOR BUMPER CROP

I will send Selected Seed for 10 Big Hills Genuine Early Six Weeks Potatoes, earliest, hardiest, best keepers on earth—delicious quality; so early you can grow two full crops a year even in the north (I send full directions); amazingly productive.

Growers Report

"650 bushels per acre."
"A full bushel from every six hills." "52 big potatoes in one hill." "12 bushels from a dollar order." Etc., etc.

Also 20 Hills New Profitic Tree Beans—enormous and sure yielders



Tree Beans and 70 Hills \$1.00.



everywhere of extra early, pure white luscious beans: 10 varieties best Butter and Head Lettuce—1700 seeds: 30 Hills red, blue, white, rice and gold Pop corn—for children and chickens: 10 beautiful fragrant Tree Ferns, and big 25c. Flower Collection—for wife and children. ALL safely boxed and postpaid for TWO DIMES or 24c. in stamps. All seeds and 30 Hills Potatoes 50c. Seeds and 250 Hills Potatoes \$3.00.

I Give 50 Beautiful Watches Free to 50 customers growing most Potatoes from 100 hills.

A. G. Cook, Potato Specialist
Hyde Park on Hudson, N. Y.

Mott's Northern-bred Italian Queens

are hardy, prolific, gentle, and hustlers, therefore resist well disease.

Untested, \$1.00 each; \$9.00 for 12.

Select Tested, \$1.50 each.

Virgins, 50c each; or three for \$1.00.

Bees by pound.

Plans "How to Introduce Queens," and "Increase," 25c. List free.

E. E. Mott, Glenwood, Mich.

GOLDEN QUEENS.....

After April 1: Untested, \$1.25 each, 6 for \$7.00, or \$13.00 per dozen, or 50 for \$48; also 3-band untested at same price; tested, \$3.00 each, and my very best at \$5.00 each. Satisfaction.

R. O. Cox, Rt. 4, Greenville, Alabama

I. F. Miller's Strain Italian Queen

BEEES FOR SALE. By return mail after June 5th to 10th or your money back. Northern bred, for business, from my best SUPERIOR BREEDERS; gentle, roll honey in, hardy, winter well, not inclined to swarm, leather-colored or three-banded. Queens a specialty; twenty-five years breeding experience. Safe arrival and satisfaction guaranteed. Untested, \$1.00; 6, \$5.50; 12, \$10.00. Select untested, \$1.25; 6, \$6.75; 12, \$12.00.

I. F. MILLER, Rt 2, Brookville, Pennsylvania

FRAMES
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THE MOST PRACTICAL AND ECONOMICAL CONTAINER

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SUPERIOR TO ANY OTHER SINGLE SERVICE CONTAINER MANUFACTURED
WRITE FOR PARTICULARS AND PRICES

THE SANITARY PAPER BOTTLE COMPANY

413 WATER STREET, SANDUSKY, OHIO

South-
ern
Head-
quarters
for
Italian
Queens



We have increased our queen yard 25 per cent to supply increasing demands for our Italian queens.

	Before June 15			After June 15		
	1	12	50 or more	1	12	50 or more
Untested Italian queens.....	\$1.25	\$13.25	\$1.00 each	\$1.00	\$11.50	\$0.90 each
Tested Italian queens.....	2.00	23.00		1.50	15.00	
Breeders, Italian queens.....	5.00	each, any time.				

We are willing to replace any untested queen which might prove to be mismated. We guarantee safe arrival on all queens we send out. We have never had any foul brood in or near any of our yards. Because we spare neither labor nor expense to produce the best queens for you is why we can not sell cheaper. Let us supply your needs.

W. D. ACHORD, Pike Road, Alabama.

MR. BEEKEEPER! DO YOU REALIZE The Busy Season Is At Hand

with prospects the best they have been in a long time? (Bees are strong and clover is making rapid progress.)

Also in concluding your plans have you considered those customers who will buy and eat your comb honey that will not touch your extracted honey at any price? Remember the successful manufacturer or producer turns out what the consumers want! Not what he likes to produce. Remember the Demands of the Market!

Transportation is slow and uncertain. However, we have a complete and liberal stock of Lewis Beeware (made like furniture) and Dadant's Foundation (the leading foundation manufacturers of the world). And the superior goods at as low a price as sound business will warrant—not a price based on cheap shoddy goods that can never please you any more than the second-hand furniture or an old, worn-out car or truck.

Parcel post orders receive prompt shipment as do express orders; or better yet, if you live in driving distance, take your truck or car and come over and you will have what you want when you want it. Have you our Lewis Bee Supply catalogue or Beginner's Book? If not a post card will bring same. For service and the test in apiculture address the

DEROY TAYLOR CO., NEWARK, Wayne County, NEW YORK

Do not forget the State meeting at our Home Apiary, August First.

TEXAS BRED QUEENS

As our bee shipping season will be practically over by June 1st, we will have some extra queens to offer at the following reduced prices. We have shipped thousands of pounds of bees and queens all over the United States and Canada again this season.

	1	6	12	50		1	6	12
Untested	\$1.25	\$6.50	\$11.50	\$40.00	Tested	\$2.00	\$10.50	\$18.50
Select Untested..	1.50	7.50	13.50	48.00	Select Untested..	2.75	15.00	27.00
1-pound package Bees.....	\$2.40	25 or more,	\$2.16 each by Express F. O. B. here					
2-pound package Bees.....	4.25	25 or more,	3.83 each by Express F. O. B. here					
3-pound package Bees.....	6.25	25 or more,	5.62 each by Express F. O. B. here					
1-frame regular Nuclei with 1 pound extra bees.....			4.50 each by Express F. O. B. here					
2-frame regular Nuclei with 1 pound extra bees.....			6.00 each by Express F. O. B. here					
1-frame regular Nuclei with 2 pound extra bees.....			6.00 each by Express F. O. B. here					
2-frame regular Nuclei with no extra bees.....			4.50 each by Express F. O. B. here					
3-frame regular Nuclei with no extra bees.....			6.00 each by Express F. O. B. here					

Add the price of Queen wanted when ordering bees. Circular free giving details.

NUECES COUNTY APIARIES, CALLEN, TEXAS

QUEENS - ITALIAN - QUEENS

BRED IN ONTARIO FROM DOOLITTLE STOCK



1919 PRICE LIST 1919

Begin Delivery June 15	1	6	12	50
Untested	\$1.00	\$5.50	\$10.00	\$37.50
Select Untested...	1.25	7.00	13.00	50.00



Send us list of your requirements **early** so as to insure date of delivery. We are booking orders now, 25% down. We clip queen's wings free of charge on request.

RUMFORD & FRETZ -:- -:- FOREST, ONTARIO

QUEENS

We guarantee safety from all foul brood disease, because there is not now and never has been any foul brood in our part of the country. Our bees and queens are absolutely free from it. Remember that

LAST YEAR WE REARED 12,348 QUEENS

which we believe to be the world's record among queen-breeders. We could do this only because of the reputation for quality and service that we have established among beekeepers far and wide.

PRICE OF QUEENS.

After June 15th	1	12	50 or more
Untested	\$1.00	\$11.00	\$.90
Select Untested	1.50	15.00	1.30
Tested	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

Prices of Dr. Miller's Queens

After June 15th	1	12	50 or more
Untested	\$1.25	\$13.25	\$1.10
Tested	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

We have a full line of Root's goods and guarantee to fill all orders within three days after receipt and all mail orders the same day received. Try us on sections, foundation, smokers and all small orders by mail. A full line manufactured from Cypress, the Wood Eternal, which we guarantee to please you. Solid one-piece covers made from the best wood in the world, without crack or crevice, at the price of other wood covers. Beeswax wanted.

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Italian Northern-bred queens. Very gentle and hardy. Great workers. Untested, \$1; 6 for \$5. Circular on application. Queens delivered after June 1.

O. E. Tulip, Arlington, Rhode Island
56 Lawrence Street

"Queens of Quality"

The genuine "Quality" kind of 3-band Italians—bred strictly for business. Untested \$1.25 each; six, \$6.50; twelve, \$11.50. Select Unt. \$1.50 each; six, \$7.50; twelve, \$13.50. Write for circular.

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It is to get ready for the coming season and be ready for the first honey flow. This will net you profits. Prepare your bees for a big year and take no chances. Get the best to do with and have the best results.

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We get the beekeepers ready for the big season. Supply them with the best of everything with which to work and get the best results. Send us a list of your requirements for quotation. TO DELAY MEANS LOSS TO YOU. "Falcon" service cannot be beat. Catalog and Simplified Beekeeping on request.

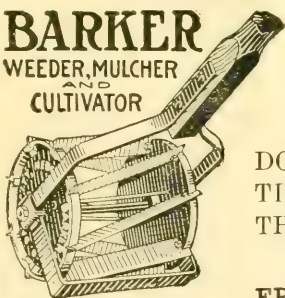
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WEEDER, MULCHER
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Weeds and Mulches In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

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Gentlemen.—Send me postpaid your free book and Factory-to-User Offer.

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So great has been the demand for copies of the A B C & X Y Z of Bee Culture that the new 1917 edition of 15,000 copies is entirely sold out. A

NEW AND REVISED EDITION

will be ready for delivery by the first of July. It is already on the press, and a large part of the printing completed. If you are contemplating getting a copy of this great bee encyclopedia, put your order in now so as to get one of the first books as soon as they are completed. ❖ ❖ ❖ ❖

THE A. I. ROOT CO.
MEDINA, OHIO

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More and more are we becoming a nation of specialists. In former times, for various reasons, it was advisable to spin cloth at home, to make clothes, to grind flour, etc.

Yet it is seldom that such operations are undertaken now by the individual family. It does not pay. The time spent, if valued at anything, would more than pay for the finished product.

Not only are you saving time, but also beeswax, as a battery of high-pressure steam presses under the supervision of a specialist can get more wax out of the same amount of combs than the individual beekeeper with a makeshift press on a kitchen range.

Dear Sirs:—Your bill for rendering beeswax, enclosing check for \$21.65, to pay for wax retained by you, was received yesterday. I am very much pleased with the result of my sending old combs to you. The quantity of wax secured is greater than I expected, and the exceeding promptness with which the matter was attended to was very gratifying. If I have combs of the same kind to be rendered again, I shall certainly send them to you. Feb. 16, 1919. HANNAH R. SEWELL, Forest Glen, Md.

Gentlemen:—Your statement of wax rendered and bill for making same into foundation are received. I inclose check for \$7.93 for the balance due you. You got 25 pounds more of wax out of it than I estimated, and I also got rid of a messy job. FLOYD MARKHAM, Ypsilanti, Mich.

Send us your refuse, scrapings, combs or cappings.

When shipping same be sure to bill as "Beeswax Refuse" so as to get the lowest freight rate.

Prices and Terms on Application

Dadant & Sons, Hamilton, Illinois

Gleanings in Bee Culture

Vol. XLVII

JULY 1919

No. 7



We are always in the market for HONEY and BEESWAX.
Do not sell until you have seen us.
We will pay you spot cash for any thing you sell us.
Get our prices on cans and cases.

Los Angeles Honey Co.

633 Central Bldg., Sixth and Main Sts.
Los Angeles, California
Telephones: Home 10419, Main 5606

Buy Your Hives Where the Lumber Grows

Made of California Pine and Redwood. Send for our new 36-page catalogue. We manufacture

Miller's California Foundation

We will mail you free sample on request. Our prices and quality will please you. We buy Beeswax and Honey. Send us your combs, cappings and refuse.

Miller Box Manufacturing Company

201-33 North Ave., Eighteen

Los Angeles, California, U. S. A.

Beekeepers of CALIFORNIA and the FAR WEST

if not already among our list of customers, are missing an opportunity to prove the value of our

Unexcelled Service

Our new factory at 1824 E. 15th St., Los Angeles, is at your service for any thing required by beekeepers.

Our Root-Weed Comb Foundation

is not excelled by any other make. We turn out over 100,000 pounds annually in Los Angeles.

OUR AUTOMATIC MACHINE FOR HOFFMAN FRAMES makes our output of these unexcelled for accuracy in workmanship and accurate dimensions. Hives and other wood goods are also accurately cut and of the best quality.

We are headquarters for HONEY-EXTRACTORS, SMOKERS, GLOVES, WIRE, and a great variety of small tools required by beekeepers.

Let Us Hear from You

The A. I. Root Company of California

1824 E. 15th St.
Los Angeles

52-54 Main Street
San Francisco

"Griggs Saves You Freight"

TOLEDO

July is here--the big White Clover Honey flow about over. . . Don't get short of sections and foundation--season promises to be good.

Honey Cans and Cases

Order these early--a limited number of 2d-hand cans on hand at 75c per case.

Honey--Honey--Honey

We shall be in the market for any quantity, both comb and extracted. . . Mail sample of extracted and state price asked in first letter.

BEESWAX always in demand
--- Cash or in trade.

GRIGGS BROTHERS CO.

Dept. No. 25

Toledo, Ohio



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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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E. R. ROOT
Editor

A. I. ROOT
Editor Home Dept.

IONA FOWLS
Assistant Editor

H. G. ROWE
Managing Editor

HERE IS A REPRODUCTION OF Muth's New Home in Cincinnati



Anticipating the wants of the trade and to meet the demands of our customers, we are now located at Pearl and Walnut Streets, carrying tremendous stocks—making this the largest Honey House in the country.

WHY YOU SHOULD BUY NOW! We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointment if you send your order for bee supplies to MUTH NOW.

MUTH'S ADVANTAGES! We sell at factory prices, **save** you freight and give you the finest bee supplies manufactured.

LEWIS BEEWARE DADANT'S FOUNDATION ROOT'S SMOKERS, EXTRACTORS, ETC.

Our new 1919 catalog sent for the mere asking. Drop us a card now! **OLD COMBS AND CAPPINGS.** Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

WANTED, COMB HONEY. Comb and Extracted Honey find ready sales here. Tell us what you have. We buy beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city come and see us.

THE FRED W. MUTH COMPANY

Pearl and Walnut Sts.

"The Busy Beemen"

Cincinnati, Ohio

ANOTHER REPORT ON Superior Foundation

Read the Following:

Superior Honey Co.,
Ogden, Utah.

Annabella, Mich.
May 7, 1919.

Gentlemen:—I am shipping you 41 lbs. of beeswax. Your foundation is the best I ever used. The bees take to it quicker. I will send you some more wax and get more foundation. Please send two or three shipping tags.

Yours truly,

G. H. ROBERTS.

Let your own bees prove to your satisfaction the merits of "Superior" Foundation. We guarantee it to be unsurpassed in quality by any other make. We are operating to utmost capacity to take care of the heavily increased demand. Write or telegraph for special prices.

Superior Honey Company, Ogden, Utah
Manufacturers of Weed Process Foundation
"Everything in Bee Supplies"

Bee Supplies

Bee Supplies

Service and Quality

Order your supplies early so as to have everything ready for the honey flow, and save money by taking advantage of the early-order cash discount. Send for our catalog; better still, send us a list of your supplies and we will be pleased to quote you.

C. H. W. WEBER & CO.
2146 CENTRAL AVE.
CINCINNATI, OHIO

HONEY MARKETS

Honey is moving very slowly with considerable variation in prices—extracted, white ranging from 15c in New York to 20-25c in Cleveland. The market will doubtless become more settled next month, when a more accurate estimate can be made on the new crop.

U. S. Government Market Reports.

HONEY ARRIVALS SINCE LAST REPORT.

Medina, O., Keokuk, Ia., and Hamilton, Ill.—No arrivals.

SHIPPING POINT INFORMATION.

Los Angeles, Calif.—New crop, supplies moderate, demand and movement moderate. Carloads f. o. b. usual terms, California orange blossom 18-20c.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the price at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding two weeks. Prices represent current quotations.)

Chicago.—No carlot arrivals, demand and movement slow, market dull. Sales to jobbers: extracted, white 17-18c per lb., light amber 16-17c. Beeswax, demand and movement good, light 45-50c.

Cincinnati.—No arrivals. Extracted, supplies liberal, no demand, market weak, no sales reported. Comb, no jobbing sales. Beeswax, supplies moderate, demand and movement slow, market steady. Sales to jobbers: pure yellow, 42c per lb., dark yellow, 38c per lb.

Cleveland.—Supplies light, demand and movement slow, market steady, few early sales. Extracted: no change in prices. Sales to wholesale confectioners and bakers: Western, 60-lb. tins, white clover 20-25c, mostly 20-22c per lb. Comb, prices lower. Sales to jobbers: Ohio, mostly \$4.00-4.50, some low as \$3.75 per dozen combs. Beeswax, mostly 45c per lb.

Denver.—No arrivals. Supplies moderate, demand and movement slow, market dull, no change in prices. Sales to jobbers: extracted, Colorado, white, quality and condition good 18c per lb. Beeswax, light 35c per lb.

Kansas City.—No arrivals since last report, demand poor, practically no movement, market steady, no change in prices. Sales to jobbers: comb, Missouri, 24-section flat cases, No. 1 light \$7.50-8.00. Extracted: Colorado, 16c per lb. Beeswax, 30-35c.

Minneapolis.—Supplies practically exhausted, demand and movement very slow, market steady. Sales direct to retailers: comb, Western, 24-section cases, fancy white, very few sales, \$7.50. Extracted: too few sales to establish market.

New York.—Arrivals: 27 bbls. Florida, 81,000 lbs. Ohio for export. Imported: 25 bbls. West Indies, 700 bbls. South America, 15 bbls. Central America, 15 bbls. Porto Rico, 15 bbls. Mexico. Exported: 25 cases and 100 bbls. Belgium, 180 cases and 670 bbls. Finland, 140 cases Sweden, 1,300 cases England, 400 cases Scandinavia, 100 bbls. Holland, 230 cases France. Demand slow, very few sales. Sales to jobbers: Extracted, California white 17-19c, amber 14-15c per lb. New York, buckwheat 10-11c per lb. Porto Rico and Cuban \$1.25-1.50 per gallon. Beeswax: imported, 320 bags South America. Exported: 10 bags Scandinavia. Demand and movement good. Light 41-42c, dark 39-40c per lb.

Philadelphia.—No arrivals since last report. Demand and movement very light on account of seasonal dullness and market oversupplied with stock purchased at high prices during sugar shortage. Sales to jobbers: per 24-section flat case, New York, comb, \$4.80-5.90.

St. Paul.—Supplies practically exhausted, too few sales to establish market.

St. Louis.—Comb and extracted, practically no supplies on market, no demand or movement, no sales reported. Beeswax, prime, 36½c per lb.

EXPORT DISTRIBUTION OF HONEY, APR. 20-30.

Total, 455,805 lbs.: to Denmark, 6,000; to France, 168,279; to Netherlands, 4,400; to Norway, 13,240; to Sweden, 259,840; to Canada and Newfoundland, 2,122; all others, 1,924 lbs.

Charles J. Brand,
Chief of Bureau.

General Quotations of Wholesalers.

[These firms are asked to quote the wholesale price they make to retailers. Accordingly their prices must be figured at least one profit higher than the price paid the producer. The large dealers do not quote prices in print that they will pay futurally to producers.]

NEW YORK.—We quote from several of the leading honey dealers in New York City, under date of June 15:

"Honey, extracted, is still quoted at low prices, but it has gone so low that, for the prices being quoted today for syrup, it can be said that prices for honey can not go lower; otherwise honey will be cheaper than syrup. Furthermore we say that we won't be surprised if by September honey will be worth a little more money. Extracted, white, per lb. 15c; light amber in cans 13c, in barrels \$1.10 per gallon; amber in cans 12c, in barrels \$1.00 per gallon. Clean average yellow beeswax, per lb. 40c."

"Market quiet but steady. Some demand for export. Several hundred barrels sold for export. Extracted honey, light amber, in barrels \$1.50; amber \$1.30 per gallon. Clean average yellow beeswax, per lb. 42c."

LIVERPOOL.—During the month there has been a fair trade doing both for export and home trade at regular prices. Australian, in cases, 14-15c per lb.; West Indian and Cuban, 14-16c; Jamaican 15-16c; Chilean, Pile No. 1, good quality, 250 barrels sold at 17½ to 18½c per lb.; No. 2, 17 1/3c; No. 3, 15½c. Prices for honey seem to have stabilized themselves for the present, largely due to the Continental demand, but how long this will continue is a question which cannot be decided; but in view of the resumption of the normal and indeed probable increased production of sugar, both beet and cane, all over the world, it would seem to be rash to expect the present level of prices to continue, and before the end of the year is reached we are afraid we shall have to record much lower prices. The value of good quality extracted honey in American equivalent, therefore continues at 16 cents per lb. The value of good quality beeswax is about 42 to 43 cents per lb. in American currency.

Taylor & Co.

Liverpool, England, May 23.

CHICAGO.—No receipts of comb and few of extracted. Beeswax bringing 40c per lb., if clean.

R. A. Burnett & Co.

Chicago, Ill., June 17.

KANSAS CITY.—Receipts of comb honey very light; the market is \$7.00 to \$8.00 according to quality. Good demand; looks as if the trade in new honey would be good. Extracted honey supply liberal; market 14-16c according to quality and kind. Beeswax 35c, good demand.

C. C. Clemons Produce Co.

Kansas City, Mo., June 16.

ST. LOUIS.—No comb honey in this market at present and extracted honey dead dull and in a waiting attitude. Quotations below merely nominal. Extracted, light amber, in cans 16-18c, in barrels 14c; extracted in cans 13-15c in barrels 12c. Clean, average yellow beeswax, per lb. 36½c.

R. Hartmann Produce Co.

St. Louis, Mo., June 16.

PHOENIX.—The honey market for June so far has been very discouraging. In former years the first two carloads were ready to ship, but there is hardly any extracted so far. There will be very little mesquite honey, but hope to have a good flow on alfalfa and cotton bloom.

L. M. Lossing.

Phoenix, Ariz., June 12.

TEXAS.—Good demand. Bulk comb honey 19½c. Extracted, white, per lb. 18c; light amber in cans 17½c. Clean average yellow beeswax 35c per lb.

J. A. Simmons.

Sabinal, Tex., June 14.

SYRACUSE.—Practically no honey moving at present. Extracted, white, per lb. 18c; light amber, in cans 15c.

E. B. Ross.

Syracuse, N. Y., June 16.

TORONTO.—No change in quotations since last month. Prices on new crop honey have not yet been named and are not expected until next month.
Toronto, Ont., June 17. Eby-Blain, Ltd.

HAMILTON.—Old honey has been pretty well cleaned up. No new honey on the market yet. Producers report good prospects. Extracted honey, light amber, in cans, 22-23c.
Hamilton, Ont., June 17. F. W. Fearman Co., Ltd.

CUBA.—Extracted honey, light amber, in barrels, 90c per gallon; amber, in barrels, 90c. Clean, average yellow beeswax, 31c per lb.
Matanzas, Cuba. A. Marzol.

TRADE NOTES

FURTHER INCREASE IN CAPITAL.

The effect of increasing values, as well as increasing business, has made a further increase necessary in the capital stock of The A. I. Root Co. Provision has been made to authorize a total issue of one and a half million dollars, divided as follows: The present preferred of \$250,000, paying 5 per cent fixed dividend, is designated as First Preferred. There is authorized \$500,000 Second Preferred paying 7 per cent annually, payable quarterly the first of February, May, August, and November of each year, 1 3/4 per cent in each payment. The issue of common stock is authorized to the extent of \$750,000. The Second Preferred is offered for general subscription and is, we believe, an attractive investment. We expect to give further particulars in next issue; but if any of our readers are interested and would like further details, write us and we will gladly furnish all information required.
THE A. I. ROOT CO.

Medina, Ohio.

Special Notices by A. I. Root

THE NEW ANNUAL SWEET CLOVER.

After the notice I gave in our June issue there came such a flood of applications for a pinch of seed that I feared our supply was not going to hold out. At this date, however, June 16, the prospect is that we shall be able to supply all applicants. It may be too late now to secure *matured seed*; but you can make a test to see what a tremendous grower it is. The following from Professor H. D. Hughes, of the Iowa State College, will, I am sure, be read with interest. We are indebted to Professor Hughes, it will be remembered, for giving this seed to the world.

"Dear Sirs:—You will remember that we sent a very few seed to each of the different State experiment stations—also to the large seedsmen thruout the country, and some of these have made very good use from the seed which they got from 40 or 50 plants. A letter from the Henry Field Seed Company, at Shenandoah, Iowa, is to the effect that they have in the neighborhood of two acres in rows.

"It occurs to me that you will be interested in a report from the Oregon Experiment Station to the effect that this clover grew to a height of 8 feet and set seed very heavily.

"This strain of this clover that we distributed is not maturing seed north of central Iowa. From the various types which we have, there is no reason why strains cannot be isolated which will mature very satisfactorily considerably farther north.

"H. D. HUGHES.

"Ames, Iowa, June 11, 1919."

Just think of it! clover eight feet tall and full of bloom in just one summer. Our Ohio Experiment Station obtained a quart of seed, and have sowed it all. Below is another report:

"Dear Friend:—I planted the seed which you sent me last fall in February and only seven plants came up (the seed seemed somewhat immature), but they grew very rapidly and soon outstripped plants of the common variety. Today they stand over five feet high and are beginning to bloom. Bees have started to work on the clover, altho only a few clusters of bloom are open.

It has started off so nicely that I have hopes that it will do well here where so few of the clovers succeed.

Thanking you again for the seed, I remain your friend.

"J. D. YANCEY.

"Bay City, Texas, June 2, 1919."

WANTED—TO PURCHASE COLORADO

Section and Bulk Comb Honey

direct from producers in car lots and less than car lots. Please let us know what you have and submit sample, full description as to weight, and your lowest price to

J. E. HARRIS, MORRISTOWN, TENN.

or our western representative, Mr. R. B. McGuffin, 1165 Emerson St., Denver, Colo.

I. F. Miller's Strain Italian Queen

BEES FOR SALE. By return mail, or your money back. Northern bred, for business, from my best SUPERIOR BREEDERS: gentle, roll honey in, hardy, winter well, not inclined to swarm, leather-colored or three-banded. Queens a specialty; twenty-five years' breeding experience. Safe arrival and satisfaction guaranteed. Untested, \$1.00; 6, \$5.00; 12, \$10.00. Select untested, \$1.25; 6, \$6.75; 12, \$12.00.

I. F. MILLER, Rt. 2, Brookville, Pennsylvania

Complete Line of

Beekeepers' Supplies

Catalog on Request

F. Coombs & Sons, Brattleboro, Vt.

BEEKEEPERS AND INSPECTORS

The California and Cornell Short Courses, consisting of a week's lectures by Dr. E. F. Phillips and Mr. G. S. Demuth of the U. S. Dept. of Agriculture at Washington, and others, reported in shorthand at Davis, Calif. The thirteen principal lectures (with questions and answers) in type-written mimeographed form—nearly equal to a 200-page book—cover the best methods of beekeeping as practically applied to both Eastern and California conditions; fundamentals of wintering in any climate; elaborate and graphic descriptions of brood diseases and their successful treatment; principles and practice of swarm prevention and control, and other subjects. Not a book, but point-blank scientific and practical talks to our best beekeepers, by our best authorities. Whether or not you were among the hundreds who attended the Short Courses, you will need these lectures to study and keep for constant reference. The new information on disease is indispensable to inspectors.

Price for the complete set, \$1.75, postpaid

"The editor regards this as a valuable publication for the beekeepers of California. He has gone over much of it and considers it a very accurate report of what was said by the Staff of the California Speakers at the Short Courses held last winter in various parts of California. These lectures cover particularly California conditions."

R. B. CALKINS

5800 HEARN STREET

OAKLAND, CALIFORNIA

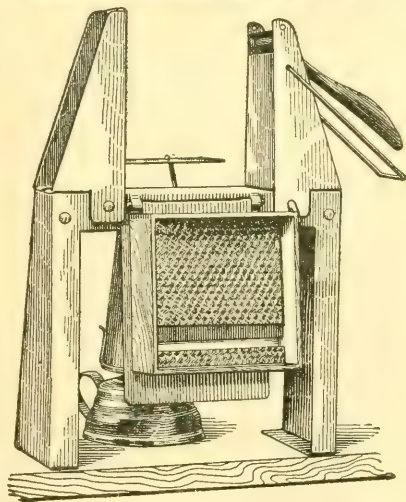
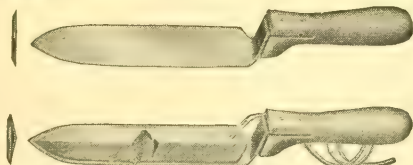
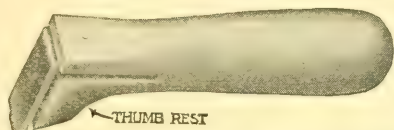
A Big Surprise

ON account of having such a run of business early we supposed later we would not have so much, but were surprised at the avalanche of orders received in May and June. During these two months we averaged a week behind on orders. It seems that there are beekeepers yet that do not order hives till the bees give word by swarming that hives are needed. We expect from now on to keep abreast of orders. If foundation and sections are needed we hope to get them to you promptly unless another avalanche comes in July.



F. A. Salisbury
1631 West Genesee Street
Syracuse, N. Y.

NEW BINGHAM BEE SMOKER



The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey-producers of the World. It is made in four sizes and has a leather bellows.

The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old timers will remember. Our Perfect Grip Cold Handle is one of the improvements.

The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.

The above specialties can be secured from us direct by post or from practically all dealers and manufacturers of supplies, with the exception of the Root Co., and agencies. Our 1919 illustrated catalog and special circulars will be mailed on request.

Tin Honey-packages

- 2 lb. Friction top cans, cases of 24
- 2 lb. Friction top cans, crates of 612
- 2½ lb. Friction top cans, cases of 24
- 2½ lb. Friction top cans, crates of 450
- 5 lb. Friction top pails, cases of 12
- 5 lb. Friction top pails, crates of 100
- 5 lb. Friction top pails, crates of 203
- 10 lb. Friction top pails, cases of 6
- 10 lb. Friction top pails, crates of 113

Write for prices on friction top cans and pails and 60-lb. cans, giving quantity wanted.

A. G. Woodman Company
Grand Rapids, Mich., U. S. A.

DADANT SPECIALTIES

DADANT'S FOUNDATION

World renowned for its excellence. Put to actual tests in our own apiaries of several hundred colonies. Every inch equal to sample in every respect. Acknowledged by hundreds of users to be the most readily drawn out by the bees, and therefore a saving to use under any circumstances.

ELECTRIC IMBEDDER

Melts the wires into the Foundations as if they had grown there. Requires only two dry cells to operate, or can be used on city current by use of a transformer which we furnish or which can be made at home. Full directions with each machine.

BEE BOOKS

First Lessons in Beekeeping, by C. P. Dadant, is a thorough book for the beginner, while **The Honeybee**, by Langstroth and Dadant, is considered the classic in Bee Culture. **A Thousand Answers to Bee Keeping Questions**, by Dr. C. C. Miller, is a compilation of over 1,000 questions answered by Doctor Miller in his 60 years of beekeeping; for veteran and amateur alike. **Practical Queen Rearing**, by Frank C. Pellett, gives the improved methods of rearing queens, with variations suitable for the home yard.

AMERICAN BEE JOURNAL

A monthly publication of 36 pages, foremost in its field for the advancement of beekeeping. Contributors from all sections and countries. The result of painstaking efforts and long experience of its editors, C. P. Dadant and Frank C. Pellett.

HONEY LABELS

Distinctive designs, up-to-the-minute. We have just issued a label catalog with samples of stationery designed especially for the beekeeper. Write for your copy. All kinds of labels to fit all styles of packages. Attractive honey sellers.

*Read Our Catalog for Further
Particulars.*

Dadant & Sons, Hamilton, Ills.

GLEANINGS IN BEE CULTURE

JULY, 1919

EDITORIAL

WHENEVER COMMON granulated sugar is scarce or hard to get, the price of honey begins to take an upward trend. This was strikingly exemplified when restrictions were



A Million-ton Shortage of Sugar.

placed upon the purchase and sale of sugar during the last two years of the Great War. When manufacturers and the housewife can not get all the sugar they want they naturally turn to honey, as it is **the only sweet** outside of cheap molasses that has sufficient strength to serve their purpose. The glucose syrups have too little actual sweetening power and too much of the gums to be of much use as a substitute for sugar.

Within the last few weeks there have been various rumors to the effect that there was going to be another scarcity of sugar. A late report going the rounds of the newspapers asserts there will be in the aggregate a million-ton shortage of the world's sugar supply, on top of the fact that prohibition is going to make an enormous demand for the product in this country and Canada. Besides this, Europe is crying for sugar. Their beet fields have either been destroyed or used for the growing of grains.

Over against this, another statement is made in the western papers concerning beet-sugar production in the West, to the effect that not only has the acreage of beets been increased by 11,000 over last year, but that the reserve supply is 6,000,000 bags this year as against 3,000,000 for the same period last year; but remember this is for beet sugar only. In spite of this increase there has been a falling off over last year of **all** sugars of over a million tons according to high authority.

Said one of the leading officials of the so-called sugar trust to the Editor of Gleanings, who thought it proper to go to the fountain head for his information, "The reports from our domestic and insular possessions show that, in spite of the increased supply of beet sugar, there will still be a shortage of sugar over last year of **over a million tons**. The newspaper reports are substantially correct."

When asked the probable effect of prohibition in stimulating a demand for sugar he said, "There is no question but that the cutting off of liquor in its various forms will make an increase in the demand for

sugar, which is a real stimulant, not an artificial one"; and then he added, "We have always noticed in and around our mills where prohibition went into effect, that the former drinkers would buy large quantities of candies, soft drinks, and icecream, when before they never bought anything of this kind."

When asked whether sugar would go up or down during or after the period of reconstruction, he said, "Congress has guaranteed to the beet-sugar interests in this country that the price of their sugar shall not go down before September next. It is not likely," he continued, "that, in view of present shortage and demand, sugar will go down for the present. What the effect of open competition will be later on I can not tell." Our informant preferred not to have his name given, but that he knew what he was talking about was very clear.

As pointed out in our last issue, the effect of sugar shortage and prohibition must necessarily stimulate a demand for honey. "But," some one says, "the President has requested Congress to remove the war-time ban on beer and wine." A canvass of the Senate and House shows that Congress is overwhelmingly against making any change. Thirty-two States have adopted state-wide prohibition, no matter what Congress may or may not do; and forty-five States have ratified the national amendment. Our lawmakers will not dare face their constituents and vote to remove war-time prohibition. But suppose they did; it would not affect the thirty-two States dry by legislative enactment nor a large part of the territory of the remainder. Beekeepers all over the land, if they will consult the interests of their boys and girls and their pocketbooks, will write to their senators and representatives in Congress protesting against any change in war-time prohibition.

We are sorry that our great President—great for some of the big things he has accomplished in making the world safer and saner—should have seen fit to take this stand. It is far more important to save for starving Europe the grain that would otherwise go into beer, and to save the boys and girls of our land, than it is to save the wine and beer interests who have had a year's warning to get under cover. The greater part of the wine vineyards of California have already been grafted to produce

a table grape; and many of the breweries of the country have been converted into creameries, soft-drink factories, and ice-plants, for which with very little change, they are well adapted.



EACH SPRING there is a growing volume of business between Northern producers and



Dissatisfaction in Early Ship- ments of Bees.

Southern breeders in early shipments of bees to make up winter loss or to make increase. The

Southern breeders solicit this business, and perhaps it can be said that the majority of them give conscientious attention to details and have a sincere desire to please their customers. There is no reason why this volume of business should not continue to grow if properly taken care of. There are some breeders, however, who each year solicit more business than they can properly take care of. They know from past experience that weather conditions may be very unfavorable, but they make promises (perhaps in the best of faith at the time), only to realize very soon that they can not possibly succeed in accomplishing what they had intended. The Northern producer, in ignorance of the ultimate inability of the breeder to fill his order, does not re-order elsewhere but lives in hope—only to be badly disappointed finally and prevented from carrying out his plans.

Quite a large number of Ontario producers combined their orders for bees with E. V. Tillson, of the Tillson Co., contracting with a certain Southern breeder for delivery of bees and queens in quantity about the first of May. The contract was entered into in December, 1918. (On account of the fact that there had been numerous complaints uncares for that this breeder attempted more than he could possibly accomplish, his advertising in Gleanings had been refused since 1917.)

In April Mr. Tillson inquired whether they could reasonably expect shipment as agreed, and he was emphatically assured that the bees would be forwarded on date specified.

The bees were not shipped, however, until some time in June; and there was, moreover, considerable dissatisfaction in addition to the long delay over the non-arrival of certain queens with the bees. The delay was so great that many of the producers refused to accept the shipments when they arrived, saying they had no use for bees at such a late date.

The breeder's excuse was the incessant rains during much of May. Continued failures, however, and a series of complaints in other years seem to show that the inclement weather was possibly not the only reason for failure. Moreover, there seem to be few complaints against other Southern breeders during this same period. It is the old story of attempting the impossible.

As stated above, perhaps the majority of

Southern breeders have given satisfaction, but the intense dissatisfaction which the minority have given seriously threatens the whole early-shipment-north business. Almost any one will excuse a breeder for failure to ship when it is downright impossible, especially if proper notice is sent, but no one will excuse promises by the dozen followed by absolute silence. It is true that this year especially, the weather in May in most parts of the country was exceedingly unfavorable. Then when the warm weather came, it came with a rush, and in almost 24 hours' time. Then days of unseasonable heat followed the three or four weeks of chilly rain. Under such conditions the patience of the producer and breeder alike is tried to the utmost.

The wisest breeders do not guarantee large shipments at any one early date. They merely guarantee to do the best they can. Making rash promises to secure orders is not good business.



A LARGE NUMBER of commercial honey-producers are going into the business heavier than ever.



No Need of Overstocking.

Many are now making their plans for next year and are writing to us, asking where they can get better and more bee range. We are answering letters almost every day covering that point. If a beekeeper only takes pains he can find more bee territory without lapping over on the territory of another. In our recent travels thru three of four States we found some fine territory heavily covered with alsike on a deep rich soil; and yet the remarkable thing was there were very few bees in some of the territory. It seemed to us a pity that such fine bee range should not be used; and it is likewise a pity—yes, a crying shame, that so many, on the "penny-wise-and-pound-foolish" plan, will squat their apiaries down within a fourth or half a mile of other prosperous yards. It is regrettable that there is no law to prevent those who have no regard at all for the golden rule from poaching on the territory of others. There is not a particle of need of it; because there is plenty of splendid territory entirely unoccupied.

Just as soon as Mr. Poacher overlaps the territory of another, he is not only cutting down the crop of his neighbor, but he is cutting down his own as well. There are very few locations that will support over 100 colonies to the location. Many will not take care of more than 25 or 30. When 100 colonies will thoroly cover a bee range it is the height of folly to squat another yard of 100 within a quarter or half a mile. Both parties lose by the transaction. While the second man has a perfectly legal right to put his bees anywhere he likes so long as he can secure a plot of ground, he has no moral right to do so. So long as there are thousands and thousands of acres of open ter-

ritory, there is no need of poaching on domain that by right of discovery or priority of occupation belongs to the other fellow.



CALIFORNIA—or, rather, the southern part of the State—usually has the first honey ready to market.



California Gossip on Honey Prices.

There is early honey in other States, in the South, but not in such quantities as to have much bearing on the market. When southern California has a large yield, and some cars are ready to be shipped to the East, the market is inclined to start off at a moderate pace. Last season California had a good crop; but the market did not drop, because war-time conditions were making an abnormal demand; and the prices, instead of sagging, as soon as the full truth was known began to go upward.

As already explained, the world was starving, and there was a ban on sugar. The housewife and the manufacturer could not get all they wanted, and they took honey, even though they had to pay several times as much for it as for sugar. Then when the sugar ban was lifted the price of honey began to tumble. Buyers stopped buying and began to "unload"—some at considerable loss. Every one got cold feet, and some frankly confessed that they got 'em "frost-ed." No, sir; no more honey for them. When there was a prospect of another big California yield, buyers began to say that honey would do well if it brought ten or even eight cents.

All at once it began to be apparent that unless there was six or eight inches more of rain in California, and that right soon, sage would be a failure, or at most only a light crop. The rains didn't come. At that time it was figured that orange, usually reliable, would furnish its usual quota of honey; but when it, too, showed up with only half a crop, producers began to talk high prices again; for had they not been told by the Editor of Gleanings that sage and orange were used largely by the bottlers? They began to talk 20 and 23 cents for their sage and orange, and they were going to get it.

The buyers and brokers in the mean time were all at sea. Not one of them was buying honey—didn't dare to, because, they said, the figures asked were too high. They were all waiting for the "other fellow" to start the ball rolling. Some of them with their frost-bitten feet didn't want to get them frozen stiff, and so they held back, fearing that, if they made the "first break," they would either buy too high and lose, or let the "other fellow" scoop all the desirable lots offered, and they be left high and dry—no honey and no profit.

One buyer said: "It would be much better for the producer to be content with a more moderate figure. It would be saner

and safer to start off at 16 or 17 cents, and let the market rise, if it would, than to start off at 23 and then have the market begin to tumble and crash away below 15 cents." Said this broker further: "History repeats itself. This thing has happened time and again with beans and other commodities and it is possible that it may happen this year with honey."

There were some purchasers, more conservative, who were inclined to accept the view last expressed, for they argued that, if there should be a large crop of alfalfa and of white clover in the East, 23 or even 20 cents would be too high.

The matter was laid before General Manager Justice, of the California Honey Producers' Co-operative Exchange. Said Mr. Justice: "I welcome high prices for my members, and should like to get them; but as we don't know what the yield from alfalfa and eastern clover is going to be, I am inclined to take a more conservative view of the situation until we know. To get the price too high at the start is more dangerous than to get it too low."

Justice holds the key to the situation to a great extent. His organization has nearly a thousand members with an aggregate of about 150,000 colonies. The other organization, the Southern California Beekeepers' Association, also has a following; and it is reasonable to suppose that the day has gone by when the small beekeeper, simply because he has to have the money, will sell at low prices. There are several of the large producers who are not in either organization; but there is no danger that they will sell too cheap.

The all-absorbing question with producers and buyers in California the first of June was, "What are the prices to be?" The sequel will be shown by the market quotations in this issue.



AS IN THE EAST, so in the West, bees are often pretty cross just as the honey flow is



Bees Just

"Awful Cross."

tapering off. This is particularly noticeable when the flow is heavy and then chokes off suddenly. Bees are usually very good-natured in an ordinary clover flow because the yield is heavy at no time; and when it does stop it does it very gradually.

This is not so in the case of eastern basswood or California orange. The honey in either case fairly drips from the blossoms, so heavy is the flow when the conditions are right. Very often the flow will let up rather abruptly with either, and then "wow! how the beggars do sting!" The Californians are sort o' used to this; but an eastern "tenderfoot" wants a good veil with wire-cloth facing and a good smoker. Even the Californians seem to prefer wire veils, and there is a reason.

IF there is any place in the United States where migratory beekeeping is practical in some form or another, it is in California. The seasons are so changeable, and the honey flora so varied, that the beekeepers must adapt themselves to conditions. Everything in the way of equipment must be light and portable. While the main highways are equal to any in the world, some of the roads are very poor. Many of the mountain roads leading to bee pasturage are narrow, rough, and decidedly uphill; and even in the orange districts the apiaries often have to be moved over soft cultivated ground. The hives must be simple and substantial. The frames used are mainly self-spacing Hoffman that are always ready for moving. The extracting-houses are small, light, and usually made in sections held together by means of bolts or

EXTRACTING IN CALIFORNIA

Permanent and Portable Extracting Houses. Danger of Overstocking. Spreading Disease, Extracting Time

By E. R. Root

clasps. Very often common tents with a mosquito-netting window in one end are used. Whatever structure is employed it must be of such a design

that it may be taken down for easy moving.

Use of Auto Trucks.

The use of light automobile trucks—usually the Ford type, on account of the mountain roads—is almost universal for moving



Fig. 1.—C. W. Johnson's one-ton Ford truck with screened extracting-house on the platform. Notice that the platform, while in use for extracting, is braced with two-by-fours. The wheelbarrow in the foreground carries the supers back and forth.

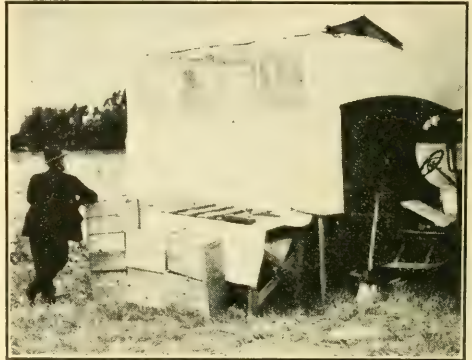


Fig. 2.—The other side of the one-ton Ford extracting-house, showing the mosquito-netting windows for ventilation and light. Chas. F. M. Stone is talking to the operators. With this extracting-house on wheels Mr. Johnson takes his honey from his thousand colonies.

and for carrying the extracting crews. Where the yards contain from 200 to 500 colonies (and there are a few of the latter size in the orange districts), heavy two-ton and three-ton trucks with large platforms are hired at so much per day or mile. In these cases the whole yard is often moved in one load. The equipment may or may not be moved with the same heavy truck. More



Fig. 3.—Apiary and extracting-house of A. F. Tice, up among the orange groves. This yard was one of the few having a good yield of orange honey this year. It was operated by his son, A. W. Tice.

often it is carried with the light truck, or a Ford with a two-wheel trailer. By the way, the trailer is very common, especially in connection with Fords; but they must have pneumatic tires and good springs.

Extracting Houses on Wheels.

I have run across a number of beekeepers who use for all purposes a regular Ford ton truck, and it certainly is a very serviceable outfit. Its rate of speed is low, but it gets there. With a large-sized platform that projects over the running-gear, it is eminently adapted to hold a framework covered with a cloth and mosquito netting for an extracting-room. The Johnson outfit shows this type. The only objection—an objection that applies to any extracting-room on wheels—is the limited amount of room for extractor, uncapping-outfit, and surplus supers of combs.

Permanent Extracting Houses.

Many beekeepers have permanent extracting-houses made of cheap lumber at each yard, where they also live and sleep. When they move the bees they go to another "shack" of the same sort, taking with them the equipment. The objection to the

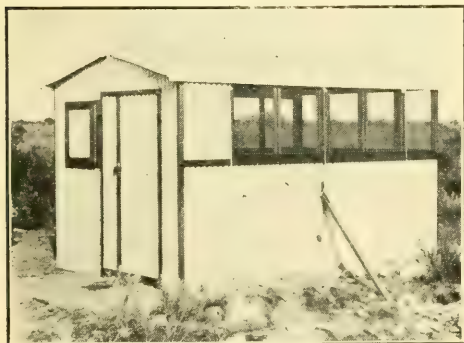


Fig. 4.—This dismantlable extracting-house used by H. A. Stearns of Duarte differs from the others in that it is made of corrugated metal. It is very neat and well designed, and should last indefinitely. The roof is covered with canvas.

permanent building is the danger that locations can not be held, or that neighbors may make it impossible to remain. I have seen many of these old bee-shacks up on the mountain sides that have been abandoned. These are certainly a waste of hard-earned money at the present price of lumber.

Take-down-able Extracting Houses.

A very common form of extracting-house is represented by the type used by Tice, McNay, and Stearns, here shown. Sometimes corrugated metal is used as seen in the Stearns building. More often a framework held together by bolts, hinges, or

clamps, and covered with cloth and mosquito netting, is used. The Tice outfit, one of the best I have seen, is made up of door panels. They all have a roof of canvas, or

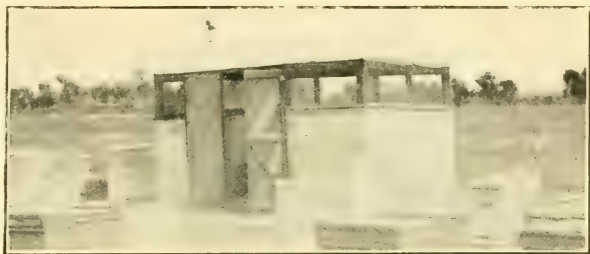


Fig. 5.—Dismountable extracting-house of Frank McNay, Pasadena. This is made of four large panels or frames covered with cloth and mosquito netting. It is held together at the corners by means of large metal hinges. When it is desired to move, the bolts to the hinges are withdrawn, when the two sides of the hinges come apart, releasing the frames, when they are loaded one by one on to a truck. This building is very cheap and serviceable.

even of common muslin, more to ward off the sun than the rain, which is not common during the time of extracting. They are all take-down-able so that they can be loaded on to a truck in an hour's time. If an obnoxious neighbor or a failure of locality renders moving necessary they can be easily moved.

Tents for Extracting.

The Lusher boys of Pasadena, with their 1,800 colonies, use a common wall tent with high sides for an extracting-house. One gable end has a large window covered with mosquito netting. The extractor is placed next to this "window" where the fumes of



Fig. 6.—Portable extracting-house of A. F. Tice, Los Angeles, also shown in Fig. 3. This structure is made up of door panels held together by clamps and bolts. The fact that Mr. Tice is a carpenter and builder explains why it is so neat and well designed. It is one of the best portable dismantlable extracting-houses in California.

the freshly extracted honey draw any robbers that may be present, and away from the door that is always kept closed by the tent flaps.

All these different schemes have their merits. What is good for California will be

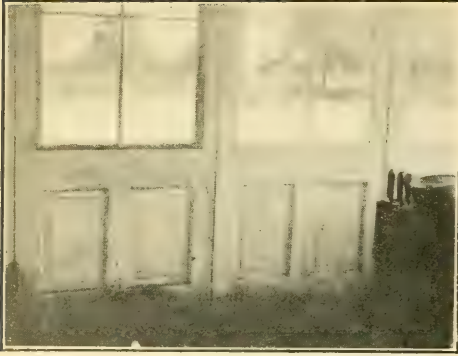


Fig. 7.—Interior of Fig. 6, looking out into the apiary shown in Fig. 3. The end of the uncapping-can and the handles of three uncapping-knives sticking up are shown at the right.

found serviceable in the East and middle West.

Putting the Extracting-combs Back on the Same Hives.

It is a very common practice among the best beekeepers to put the extracting-combs, after they are emptied, back on the hives whence they came. This is done to prevent the spread of disease thru the interchange

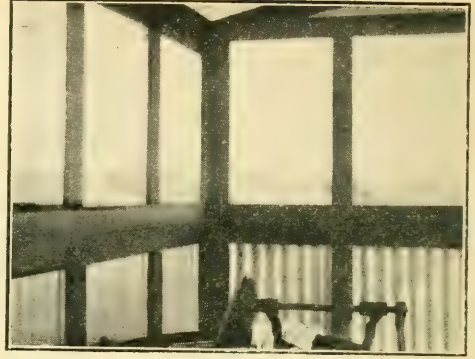


Fig. 9.—Interior of building shown in Fig. 4. It is held together by barndoor hasps and wooden pegs on the inside of the corners. The windows are wooden frames with wire screen.

of combs. It is to be regretted that the practice is not universal, with the general prevalence of brood diseases, not only in California but thruout the United States. Different beekeepers have different systems for putting back the combs. Some use a scheme of numbering supers and hives like Mr. Larinan; and others, like the Lusher brothers, work one hive at a time, so manip-



Fig. 8.—A small portion of a 400-colony apiary belonging to A. E. Lusher. The extracting-“house” consists of a tent with high side walls. One end of the tent opposite the door has a large window covered with mosquito netting for light and ventilation. There is no dodging the fact that it is the most portable of any of the structures here shown; and the fact that it is used and preferred by men who own and operate 1,800 colonies most successfully proves that it must have merit.

ulating the supers that they go back on the hive whence they came. From the fact that they use a tent for extracting, and tote supers by man power, it might seem their methods are laborious and crude. We must judge a system by its results, for they not only operate 1,800 colonies but are among the most successful beekeepers in southern California.

Their hives and equipment are first-class in every respect. One of their apiaries is one of the prettiest in all the State. Four hundred colonies all in one location!

Orange as a Source of Honey.

When the explanation is made that they

are on a private orange ranch where no other bees can come, it is clear that this is possible. When the conditions are right the orange is an enormous yielder of honey, and some have said that it would be difficult to overstock; but that there is overstocking, even in orange, I have no doubt. In Riverside County alone, thousands of colonies from other States are moved into the orange districts every year, thus cutting down the yields per colony. The California beekeepers put up no complaint, because some of them move up into Nevada, Idaho, and Montana. It is a case of reciprocity.

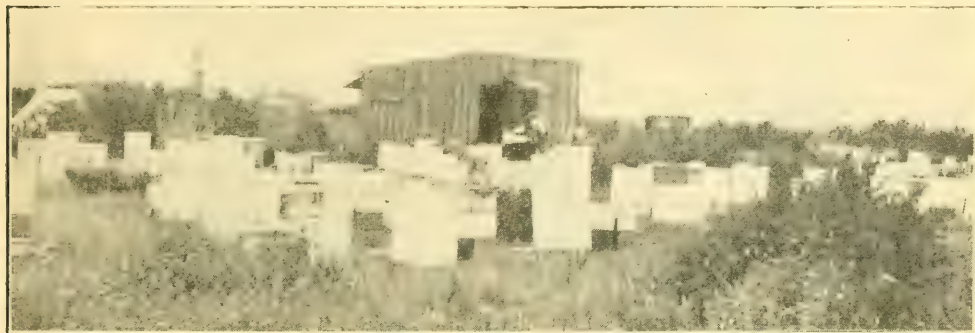


Fig. 10.—One of the apiaries of G. B. Larinan, Pasadena, who owns and operates over one thousand colonies. He uses permanent extracting-houses at each location, as he prefers to operate with an eight-frame power-extractor outfit, and have plenty of room for supers and equipment.

DURING the last 35 or 40 years it has cost me thousands of dollars going to conventions and visiting beekeepers, but in that way I have learned a good many things—learned from those who knew more in general about beekeeping than I, and also learned from those who were not so well informed, but who on some specific points knew more than I did. I have always endeavored to give credit to the one to whom credit was due.

Among the number attending the lectures for commercial beekeepers given at Cornell University there was an extensive beekeeper by the name of Orlando W. Bedell of Earlville N. Y. Mr. Bedell very kindly told me about a capping-press he had designed for the purpose of pressing the honey from the cappings immediately after they are sliced from the combs. He showed me a sample of the wax “cheese.” It appeared to be very compact, almost as solid as wax, and perfectly dry. After taking a piece in my mouth and chewing it, I found it only very slightly sweet. Mr. Bedell told me that the plan removes practically all of the honey

PRESSING CAPPINGS DRY

An Interesting Plan for Extracting the Honey from Cappings by Means of Great Pressure

By R. F. Holtermann

from the cappings without, of course, injuring it in any way, as there is no heat.

In my own experience in allowing cappings to stand 24

hours to drain there is still $1\frac{1}{2}$ per cent of the total honey left in the cappings, and most beekeepers have as much as 2 per cent. Allowing for the actual depreciation in value, this averages a yearly loss to me of \$100. F. W. Lesser of East Syracuse, N. Y., who has seen the result of the work done with the press, speaks very highly of it, as does also that well known beekeeper, S. D. House of Camillus, N. Y.

How Operated.

The cappings fall from the knife directly into the circular “hoop” or cylinder made of staves; and when one hoop contains all it will hold it is shoved along under the press, and the honey pressed out. The “cheeses” handle like solid bricks and can be put aside until a convenient time for melting into solid cakes.

I must confess that after considerable experience, I do not like the capping-melter. With proper care, and everything in order,

the danger of fire is not great, yet there is some danger. And then the added heat in the extracting room at a time when the normal temperature is already as high as most people can stand, is a great nuisance. I intend using one of these presses this season.

The plan may be followed with two or more hoops or cylinders. Two furnish ca-

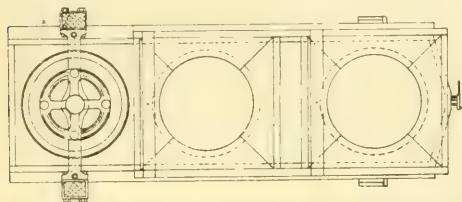


Fig. 1.—Top view of capping press, showing the construction of the support for the screw at the left.

capacity enough for one uncapper, while three are enough for two uncappers.

When ready to begin work, a hoop is placed under its hopper, and the cappings fall into it just as into any uncapping can. They are leveled off occasionally so as to get as many as possible into the hoop at one time. Of course, meanwhile, they have a good chance to drain.

When the hoop is full it is slid along on the rack under the screw, a follower placed on top, and the screw turned down about as far as it can be turned with the hand.

About every 15 minutes the screw is turned a few times by means of a stout stick placed between the projections of the wheel on top of the screw until finally it will turn down no further.

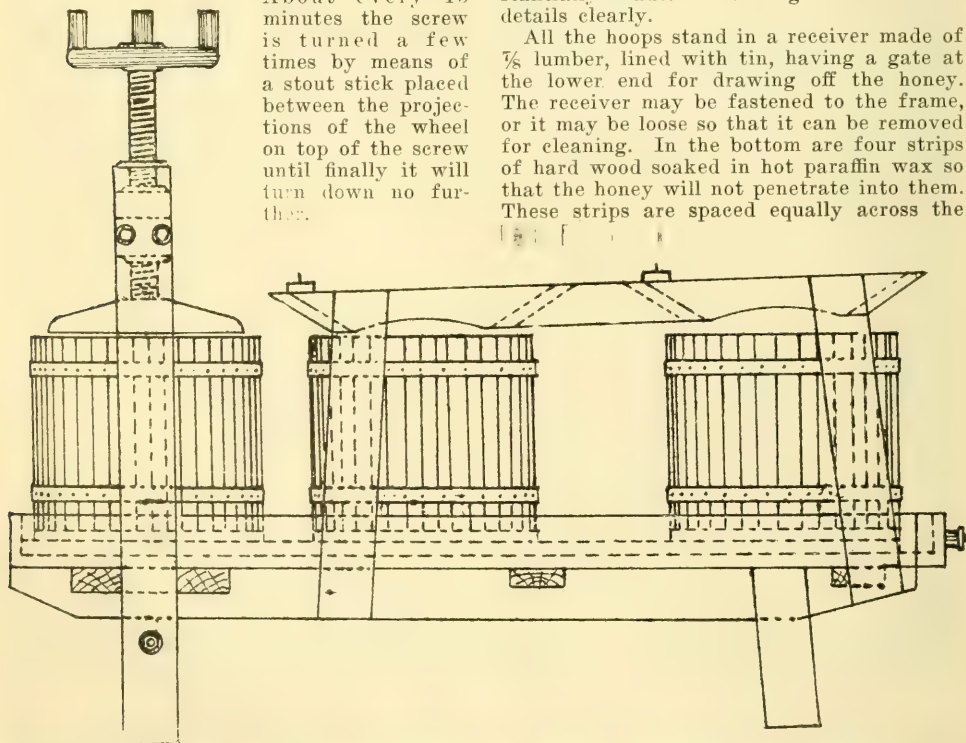


Fig. 2.—This is a side view of the whole press showing receiver, three hoops, screw, hopper, and sharp points for end-bars to rest on when uncapping.

When the second hoop is full the first is raised up, blocks placed under the edges, and the cheese pushed out by means of the screw. Then hoop No. 2 is handled the same as the first one.

In using the press last season, Mr. Bede'll uncapped into a barrel which had holes in the bottom, and he allowed the cappings to drain until the next day, then transferred them to his press. In this way he secured about 40 pounds additional honey for every 1,000 pounds of honey he extracted, and he had his cappings in such a compact form

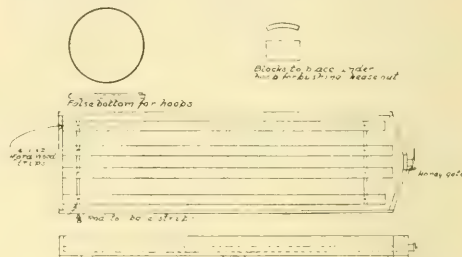


Fig. 3.—Tin-lined tray to go under hoops to catch honey. Cut greatly reduced in size.

that it required the cappings from four tons of honey to fill a flour barrel, the honey meanwhile being in a tank ready to market.

Details of Construction.

The press and all its parts must be substantially made. The diagrams show the details clearly.

All the hoops stand in a receiver made of $\frac{7}{8}$ lumber, lined with tin, having a gate at the lower end for drawing off the honey. The receiver may be fastened to the frame, or it may be loose so that it can be removed for cleaning. In the bottom are four strips of hard wood soaked in hot paraffin wax so that the honey will not penetrate into them. These strips are spaced equally across the

space equal to the diameter of the hoop. In this way the honey can drain freely.

The hoops are built of beech strips, $\frac{7}{8}$ thick and about $1\frac{1}{8}$ inches wide, spaced $\frac{3}{16}$ inch apart. Welded iron bands of $\frac{3}{16} \times 1\frac{1}{8}$ -inch material enclose the staves which are riveted to them. The hoops themselves are 15 inches high and about 18 inches in diameter. Each hoop has a false bottom, as shown in Fig. 4, which telescopes slightly into the bottom, as indicated in the drawing. The outside diameter of the false bottom is a little less than the outside diameter of the hoop, to permit the blocks to be placed underneath and give space for the cheese to be pressed out of the hoop. A loose follower covers the cappings for each pressing.

The frame is built of ash. Fig. 1 is a side view of the press, showing the receiver, the three hoops, the screw, the hopper to uncap into, also the sharp points for the end-bars to rest on while the combs are being uncapped.

The screw itself should be $1\frac{1}{2}$ inches, or $1\frac{1}{4}$ inches in diameter, 4 threads to the inch, with a hand wheel on the upper end having four projections so that a lever can be used between them for securing great pressure. A $\frac{1}{2}$ -inch bolt on each side of the cross-heads runs down thru the frame to give added tensile strength.

It has occurred to me that by having extra hoops the outfit would also make an excellent wax press for melting and rendering the cappings later on into solid wax, or for rendering old combs, the extra hoop to be used for melted wax only and never for pressing the honey out of cappings.

Brantford, Can.

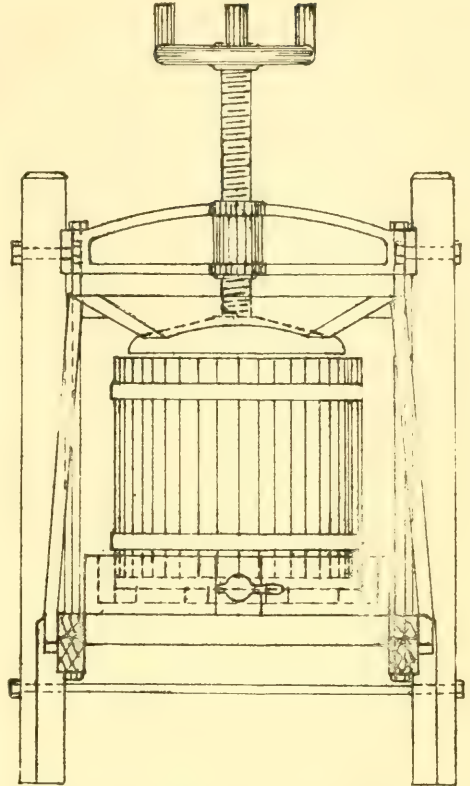


Fig. 4. End view. The other two "hoops" are supposed to be back of the one under the screw shown in front.



CLOSING OF THE SEASON

Various Important Problems to be Considered in Connection with July Management

By Belva M. Demuth

IN our locality the month of

July brings the close of the honey flow. Sometimes it closes abruptly early in the month, while other years it

may continue thruout the greater portion of the month, decreasing toward the end so that the final closing is indistinct.

If the date of the close of the honey flow could be definitely foretold, the proper management for comb honey at this time would be less difficult. It would then be possible to begin a concentration of the work in the supers at such a time that there would be few if any unfinished sections at the close of the season. If the honey flow should close abruptly before expected, the plan which I outlined last month in rapidly expanding the work in the supers might result in many poorly filled, as well as many unfinished sections. In such cases it would

have been better if all the work had been crowded into fewer supers; but, by being ready at any moment quickly to concentrate the work in the supers, loss in

this way may usually be avoided. For this reason we anxiously watch the character of the work the bees are doing and the advancement of the clover. If, when a new super is given, the bees begin work in only a part of the sections instead of taking possession of the entire super and starting work in all of the sections, we take this as a signal to quit adding the new super below those already begun and to begin placing them on top, if more are added.

Concentration of Super Work.

At the first indications of the waning of the honey flow there is a radical change in the disposition of the supers. The problem now is to reduce the number of supers per

colony just as rapidly as possible until each has but one. Supers in which the bees have just made a start are transferred to the top, or stored until next year. If they contain a little honey the bees are permitted to clean them out, care being taken that the room in the shop in which they are exposed is partially darkened to prevent so many bees working on the combs that they would tear them down. Supers nearly completed are taken off, the sections of honey sorted, and the unfinished ones reassembled in supers to be returned to the bees. The supers are soon reduced to but one for each colony. We leave a little room in this super for the storage of incoming nectar, as the bees finish their work more promptly if new work is still in progress.

The next step in concentrating the work in the supers is the removal of all of them again as soon as half or two-thirds of the sections are sealed, sorting the sections as before, then returning the unfinished ones to the colonies that have been doing the best work at finishing. This leaves one-half or two-thirds of the colonies without supers after the unfinished sections have been returned; but no more comb-honey supers are given to these even tho the honey flow may continue another week.

The extra hive bodies and brood-combs, which were taken away when the first comb-honey supers were given at the beginning of the honey flow and tiered up on specially prepared nuclei or weak colonies, are now returned to the colonies from which all the comb-honey supers have been removed. If these hive bodies are completely filled with honey, some of the combs are exchanged for empty ones in order that there may be room. We prefer to have the last few pounds of honey stored in these combs rather than in unfinished sections. Later all the comb-honey supers are removed and the sections sorted; but usually none are given back to be finished now, for it is difficult to induce the bees to finish and seal the last of the unfinished sections as the honey flow is closing. We extract the honey from these few remaining sections and put them on a few hives overnight to be cleaned out by the bees, after which they are stored away in tightly covered supers for bait combs the next spring. The colonies that were doing this last finishing work are now given their second hive body, with its store of honey, as was done with those from which all comb-honey supers were removed earlier.

Last Honey Usually of Poor Quality.

For some unaccountable reason the bees usually leave a portion of the latest-gathered honey unsealed, even when it is left longer than it would seem necessary to ripen it. Furthermore, this last-gathered honey is usually not properly ripened, no matter how long it is left on the hive. Honey that is extracted from the sections that remain unfinished at the last sorting is usually not only thinner than it should be but is also off in flavor. The same thing is noticeable

in our locality in producing extracted honey. The few pounds of late-gathered honey which the bees refuse to seal remain of an inferior grade even if left on the hive to ripen another month. When this unsealed honey is finally extracted separately it is found to be inferior in density and flavor.

Care of Comb Honey.

We formerly stored the finished supers of comb honey in the honey room in piles, the supers being separated from each other by means of $\frac{3}{8}$ -inch sticks placed between them for ventilation according to the directions usually given for storing the honey as it is removed from the hives. In addition to this we opened the windows freely during dry weather, the theory being that the abundance of ventilation would cause a further ripening of the honey, thus improving its quality. We found, however, that this treatment sometimes causes a deterioration of the honey rather than its improvement. If the honey is left in such ventilated piles until a cool spell of weather comes that lasts long enough to cool the honey very much, there is danger, when the weather warms up again, that the cold honey with warmer air circulating freely thru the supers may cause a slight condensation of moisture on its surface, which may be absorbed, causing the honey to expand in the cells against the capping. We have several times had many supers of beautiful comb honey ruined in this way when changes in temperature would have been less injurious if there had been no ventilation.

On the other hand, if the late summer and fall should be hot and dry, comb honey exposed to the air in this way for any great length of time loses so much of its aroma that much of the delicate flavor of the finest clover honey may be lost. When we realized these drawbacks, we changed the method of storing the supers. We now pile them in solid piles soon after they are brought into the honey room, closing the top and bottom of the pile tightly. The honey brought in during the latter part of the honey flow is usually piled in tight piles at once. The propolis on the edges of the supers in most cases seals the cracks between them so that moisture-laden air can not circulate among the combs and the aroma is well retained until the honey is finally cased for market.

The Useless Consumers.

Various methods have been proposed to reduce the amount of brood reared too late for the resulting bees to help gather the crop.

In comb-honey production this problem is fairly well solved by the bees themselves by their tendency to restrict the queen during the honey flow by crowding honey into the brood-chamber. When producing extracted honey, however, under our conditions bees are inclined to overdo brood-rearing during the latter part of the honey flow so that millions of workers are reared that are not used advantageously.

We formerly moved our apiaries in August to a region affording a fall honey flow

in order to utilize these late-emerging bees. In localities which do not afford a fall honey flow colonies run for extracted honey may be divided at the close of the honey flow, if increase is desired, as has been suggested by Mr. Holtermann. This would make good use of the extra bees at this time, and, if each half of these big colonies is given a young queen and plenty of honey early in August, they should both be in prime condition for winter, each fully as strong at the beginning of winter as the undivided colony would have been if left alone.

Some producers of extracted honey crowd the bees in the supers when the close of the season approaches, as is also done in comb-honey production. In doing this they probably save considerable honey that would have been used in superfluous brood-rearing, and also gain the advantage of having the crop of honey stored more compactly in the supers.

In Conclusion.

In this connection, I am reminded that next month, so far as getting the bees ready is concerned, we begin to prepare for the honey flow of 1920. As I said last summer in the first of this series of articles, "The beekeepers' calendar should begin in August," by seeing that each colony is in proper condition to rear sufficient brood for its winter cluster. The subsequent steps in the year's work leading toward the few weeks of harvest next year, which I have attempted to outline briefly in Gleanings during the past year, are now due to be taken again. The many variations in details in fitting a system of management to the peculiarities of the season will bring the usual perplexities and worries as well as pleasant surprises, but the eternal hope that next season may be the best ever is sufficient to tide us over the rough places.



THE disturbance in the economic life of this and other countries as the result of the transition from peace to war-time pursuits, and back again to peace conditions, has upset the plans and calculations of a multitude of individuals who are now earnestly seeking an honest and honorable means of gaining an acceptable living. All too many who volunteered or were called away from their peaceful pursuits to engage in the world war have returned to find their occupations gone.

Undoubtedly many manufacturers who changed their plants to meet the exigencies of war have sustained great loss in prestige and markets, rendering it impracticable or impossible to give employment to all their former employees. Moreover, many soldiers having had a taste of the outdoor and simple life, and having realized the blessings of pure air, sunshine, and untrammelled movement, are undoubtedly reluctant to return to the countinghouse, office, or factory for an occupation or employment. Happily the time has come to turn the "swords into plowshares," but to accomplish it involves many readjustments and transformations.

In casting about for a healthful and invigorating occupation—one in which a good-

DOES BEEKEEPING PAY?

Beekeeping is Not a Get-Rich-Quick Scheme, But a Good Business Proposition for those in Good Locations

By Orel L. Hershiser

[Many letters have come to us recently from returned soldiers and others, asking whether beekeeping really pays as a source of income, or whether one must have some other business as a side line in order to insure a good income and a credit in the bank. We accordingly asked Mr. Hershiser to discuss the subject in Gleanings. At first thought it may seem that possibly he has made out too good a case for the beekeeper; yet it will be noted that when he speaks of very large returns he admits them near the high-water mark, so that, on the whole, we believe that, if our readers will carefully weigh his words, they will agree that he has not painted the picture in too rosy a hue.—Editor.]

tate the profitable marketing of all the honey that is likely to be produced.

Recreation of Beekeeping.

Work with the bees is as much recreation as toil. The development of ways and means to induce the bees to accomplish the most for their master gives mental employment to those of scholarly taste. Interest in building up the colonies in preparation for the honey flow develops into fascination as they reach the highest point of prosperity and enter upon the harvest of sweets. When daily watchfulness is required that super room be provided, and the hives are built three or more stories high to hold the treasure of sweets that his skill has made it possible to save from waste, then may he commence to count his financial gain.

A prosperous apiary, with hives tiered up containing a bountiful crop of honey is

ly share of the compensation is to be realized in the pleasure of the work—beekeeping may well be given careful consideration.

The demand for honey is on the steady increase, and has more than kept pace with production; and an overproduction is a possibility too remote to be considered. Better methods of distribution which are in the process of evolution will facilitate

a most inspiring sight. The hum of the bees as they steadily pour into the hives, intent only on garnering the precious and wholesome treasure from the blossoms of the fields, is music to him, and his occupation of turning the God-given instinct of the bee to work for the benefit of mankind is a pleasure most satisfying.

The specialist beekeeper has outdoor employment in abundance in the temperate climates commencing with the first warm days of spring, and continuing until the beginning of winter weather.

Beekeeping as a Source of Livelihood.

However, the uppermost question in reference to beekeeping, in the mind of the average inquirer, is, "Does beekeeping pay in



Hives tiered as high as this are a common sight in a good locality.

dollars and cents?" for, no matter what compensation in pleasure and healthfulness it affords, the monetary rewards must be sufficient to satisfy the requirements of the individual who is seeking a good occupation for a living.

To answer this question, let us take an example of a real beekeeper in a good but by no means exceptional location for honey production, operating not so many bees but that he can, if necessary, do nearly all his work single-handed, and therefore not menaced by strikes or other labor troubles—a scientific and up-to-date beekeeper, if you please, and such a one as beginners would do well to emulate.

Returns at Times Very High.

For such an example I have before me a report of a beekeeper of Michigan who last season produced, from 280 colonies of bees, honey that sold for \$7,486.87—an average of nearly \$27.00 per colony, while some of his best colonies made as high as \$78.00. Besides the honey he produced 350 pounds of beeswax and increased his apiary by 45 colonies. It seems fair to place the value of the 45 colonies' increase, especially in this beekeeper's hands, at \$32.00 per colony, which would amount to \$1,440; and the beeswax, at 40 cents a pound, net, which would amount to \$140, making a grand total gross income from the apiary of \$9,066—an actual average of over \$32.00 per colony. The ex-

penses of operation are not given, but they would be comparatively trifling, probably coming well within \$1,500, and would consist chiefly of containers for honey, complete hives for increase, and necessary help and transportation.

As a means of money-making, the value of this investment to the beekeeper may be readily calculated if we know or assume the percentage of profit on his capital that will meet his expectations. Suppose he is satisfied with 25 per cent gross. Then his investment in bees and equipment would be valued at \$36,264, as 25 per cent of \$36,264 equals \$9,066; and his original 280 colonies have a valuation of \$129.50 each, as 280 is contained in 36,264 about 129.50 times. This seems high for bees; but it also seems difficult to get away from it except upon the theory that the labor and skill of the beekeeper are the chief factors in the production of a crop of honey.

Suppose we examine the proposition from another angle, and imagine the beekeeper does not object to being classed as a "profiteer" and will be satisfied with nothing less than 100 per cent gross profit. Then if he makes \$9,066, or 100 per cent, on 280 colonies of bees, they must represent a capital of \$9,066, or \$32.37 per colony. While last season's crop of honey was not abnormal, the jobbing price was higher than may be expected in the future; but the percentage of profit on the valuation of \$32.00 per colony may be considerably reduced before it ceases to be attractive to the beekeeper.

Let it also be said that this case represents something near the high-water mark



Another paying proposition.

in beekeeping, but not the highest. Others have realized larger returns for last season's crop. Dr. C. C. Miller is acquainted with a man who has produced a higher average in dollars and cents per colony when honey was only about half the prices of 1918. These are reliable illustrations of the possibilities of beekeeping in the hands of those operating such a number of colonies as may be properly cared for with little outside help, and, of course, represent above the average in beekeeping. They serve to show that,

even with a much lower average of profit, beekeeping in the hands of the intelligent and well-equipped operator is an attractive proposition, and, accordingly, what ought to be a satisfactory return on the assumed valuation may be confidently expected. Moreover, bees are worth more to the beekeeper than to persons who do not know how to handle them profitably, and for that reason they may often be purchased for much less than their intrinsic value in the hands of the specialist. There are few if any lines of rural husbandry wherein the human factor adds so much of value to the object that is being exploited as a means of livelihood.

Choosing Good Locations.

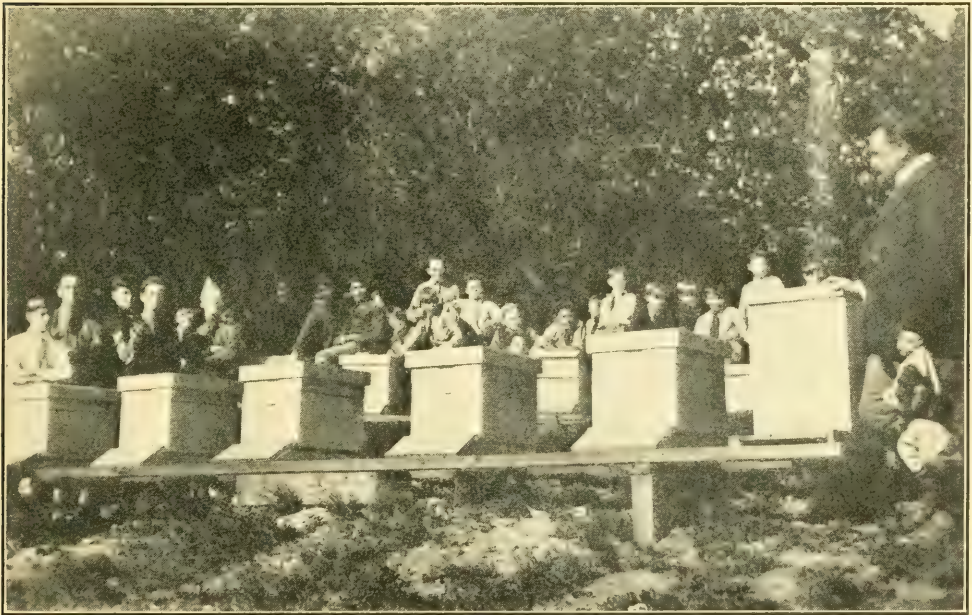
Several factors contribute to success in beekeeping. Location is one of them. The bees should be located within easy reach of plenty of honey-producing flowers. Such locations are common—so much so, indeed,

grove, palmetto, and many other honey plants are common, often two or more of them in the same locality. In the Northeastern States considerable buckwheat and goldenrod honey is produced.

The value of a location is enhanced if it has several abundant sources of honey which follow each other in blooming period. Yet, if a locality affords one or two varieties of honey-producing plants that may be relied on, and that occur in great abundance, such a location would be preferable to one with a small area of each of a greater number of varieties. Certain localities in New York State are so much devoted to growing buckwheat that beekeepers resident there make a specialty of buckwheat honey. The same is true of other honey-producing plants in other localities.

Importance of Personal Factor.

Then there is the human factor. To make a commercial success of beekeeping, not



Many schools now teach beekeeping. This is the Montezuma Mountain School mentioned in *Just News*.

that in many parts of our great country, and other countries as well, it is not at all difficult to select good locations.

We have in the Northern and Eastern States the great clover belt which extends, roughly speaking, from the latitude of the Ohio River northward to and beyond our boundary, and from the Mississippi River eastward, within which poor locations are the exception. Then there are the great alfalfa regions of the semiarid West, which are wonderful honey-producing areas. In certain localities in California and Florida orange-blossom honey is produced in quantity. In certain sections of the Southern States cotton, sweet clover, tupelo, man-

only are book knowledge and experience necessary, but also especial characteristics of the man. He will surely succeed if he has the adaptability, or what might be more specifically termed the beekeeping instinct. He must be industrious, attentive to details, possess some mechanical ability, be a close observer and something of a naturalist.

His industrious tendencies will impel him to build up his weak colonies and induce all his queen bees to reach the highest possibilities of reproduction of worker bees in time to avail himself of the full benefits of the honey flow. He will have a well-laid-out workroom, and tools and equipment provided, with a view of accomplishing the maxi-

mum of results with the minimum of exertion. He should be familiar with ordinary mechanical tools, and be able to make necessary repairs to hives and other equipment.

He will know each variety of flower on which he depends for a crop of honey, when and how long it may be expected to bloom, and what are the probable effects of weather on it. He will know when the bees are preparing to swarm, and what measures to take to prevent or control swarming.

He will know the life history of the queen, the workers, and the drones, and what are the functions of each, and a multitude of other details. In fact, a specialist beekeeper is sure to be a well-rounded-out

better off financially if he had given the farm away when he inherited it, and had devoted himself exclusively to beekeeping instead of dividing his time and attention between the farm and the bees.

Best Strains of Bees Needed.

To reach the highest measure of success in any occupation, the best means to attain the desired end must be employed. The farmer specializes in the crops best suited to his soil and climate; the horticulturist, with those varieties of fruit that reach the highest perfection in his locality; and the livestock specialist, with the breeds of stock best adapted to his purpose. The beekeeper is no exception to this rule. To realize the highest percentage of profit, the best strains



Many returned soldiers and nurses are thinking of taking up beekeeping.

intellectual man or woman, whether having had good educational opportunities and advantages or not; and let it be said in passing that the necessity of all these accomplishments in the successful beekeeper may be given as the reason for the higher average of his intelligence.

Some men have the beekeeping instinct so highly developed that any time they may devote to other money-making activities is against their financial success. As an illustration, a beekeeper of New York State, who enjoys an international reputation for his success as a beekeeper, and who inherited a valuable farm of some two hundred acres, maintains that he would have been

of bees must be employed—those that are markedly industrious; that resist disease; that winter well; that are gentle, and easy to manipulate; and, if comb honey is to be produced, bees that cap the honey white.

How Best to Gain Experience.

The prospective beekeeper should not allow his ardor to get the best of his judgment. Too much haste is not speed in acquiring proficiency, and in making beekeeping a commercial success. One way to learn the business is to commence with not to exceed five colonies, and with these, put into practice the theories and practical directions that are obtainable from text-books, bee periodicals, and government bulletins on

beekeeping. When the would-be beekeeper learns by practical experience that he can manage a few colonies profitably he can enlarge the business at will and with success assured.

If he desires to become well qualified in as short a time as possible to produce honey in quantity, there is no better way than to engage in the work with a specialist for at least one season. This practical experience will decide whether the student possesses the essential natural qualifications. Also a knowledge of desirable equipment of hives and devices, and how properly to use them, will have been secured, which will prove to be of great value to the beginner.

Danger of Overstocking.

In establishing an apiary, due regard should be had for the moral rights of other beekeepers already established. If a beekeeper is occupying a location with as many bees as it will profitably support, a due observance of professional ethics would deter another from occupying practically the same location. The beekeeper who encroaches on a well-stocked location will necessarily have to put up with much smaller crops of honey than he would if he placed his bees in unoccupied territory. Self-interest ought to be sufficient incentive to prevent overstocking.

Prosperity of Beekeepers.

Are beekeepers as a class prosperous? There are some indications that they are, and are becoming more and more so from year to year. Beekeepers' conventions attract beekeepers long distances, and a few years ago a special car was occupied by them alone on a trip from Chicago to Los Angeles, Cal., to attend a convention of the National Beekeepers' Association. Many educational institutions maintain an apicultural chair and department. Apiculture is recognized and fostered by liberal appropriations by the United States and other governments. A "straw" that indicates in some degree the prosperity of beekeepers was noted by a careful observer at a recent beekeepers' field meeting in western New York; that is, out of nearly one hundred automobiles owned by the beekeepers who attended, and which conveyed them to the meeting, very few of them were of the familiar Ford make. Undoubtedly this very serviceable car for ordinary use by the apiarist had been left at home, and the more classy cars used for public appearances.

Easy to Succeed.

Beekeeping as an occupation has developed rapidly from an avocation to the dignity of a vocation, and all within the past sixty years. Within the memory of many veteran beekeepers the activity of the apiarist, with few exceptions, was confined to the one home apiary; now specialists with a string of apiaries are common. Within that time the most valuable aids to commercial beekeeping have been invented and brought into common use. Without these the high

degree of success attained would have been impossible. Sixty years ago there was not a factory of importance that made a specialty of beekeepers' supplies. At the present time there are numerous well-known houses turning out vast quantities of material for the use of the beekeeper that reach into every quarter of the globe. The science of beekeeping is also enriched by several high-class trade journals, and many books and government bulletins. Indeed, the cumulative knowledge of the science that is now available is so abundant that, to become proficient, and make beekeeping pay, is comparatively easy in these later years.

Kenmore, N. Y.

[Among the beekeepers we have known, and who have made this business a source of livelihood, we remember only one who actually failed, and his failure was due to drink. On the other hand, we have known many people who have been carried away with enthusiasm for a short time, starting with a few colonies, only to become discouraged because of a poor honey flow, and soon drop out of the game. Beekeeping, extended over a number of years, certainly does pay, and there are enough extra-good years to balance fully the poor ones. We recommend beekeeping as a good business proposition for the man who is willing to spend the time, labor, and capital necessary.]

Following are concise statements from other noted beekeepers whose opinions carry considerable weight.—Editor.]

* * *

It is just 50 years since I made beekeeping my principal business. For some years I ran a small farm as a side line, not daring to risk my success with bees alone. I am located in a fairly good section—not the best, but better than many other places; and now looking back I can see that I should have had much better success if I had confined myself to beekeeping alone. Some years beekeeping, like other kinds of business, pays poorly; and if one can turn to something else it helps out.

Middlebury, Vt.

J. E. Crane.

* * *

As a result of my own experience, and of travel among quite a number of beekeepers in several States, I find that, if one's ideal of success is something more than the mere accumulation of money or wealth, beekeeping does often pay quite well. However, the majority of those engaged in extensive commercial beekeeping show little evidence of wealth. For wealth alone, choose some other calling. The past two years have been exceptionally profitable; but we shall never see the like again. More effort must be devoted to the extension of marketing facilities or disaster will overtake us.

Meridian, Ida.

E. F. Atwater.

* * *

If you like bees and are interested in the study of them you can make beekeeping a paying business the same as farming, poul-

try, the mercantile business, or any of the professions. However, to make it a success, financially or otherwise, you must put your brains and brawn into the business, especially good common sense. A lazy beekeeper, or one looking for an easy way to make money, had better take up some other work, as he will get badly stung in beekeeping. Do not expect, when you have bought bees, that you will begin to realize profits. Expenses are high, misfortune often follows, and disease comes. Not all seasons are favorable for a good crop.

Lamar, Colo. Cora D. Polhemus.

* * *

I am inclined to believe that, under favorable conditions, commercial beekeeping may be made a financial success. Disease is, undoubtedly, the greatest hindrance; but by proper precautions and prompt action upon its appearance it may be kept under control. I believe the success of any undertaking is largely up to the person in charge, as is evidenced by marked successes in practically every business or profession.

Yes, I would say that, to the ambitious person, the chances are good. Find a good location, get a suitable equipment, practice the most approved methods, and success ought to be yours. Ira D. Bartlett.

* * *

Yes and no. Like every other line of human endeavor it depends upon the man. Some persons never grasp the essentials, others get them quickly; the first never succeed while the latter do if other things are equal. The "other things" are good location, sufficient capital, and salesmanship.

The necessary knowledge is best acquired thru work with a professional, coupled with a study of the history of the art. A knowledge of what has gone before is almost as important as knowledge of what is done now. Arthur C. Miller.

* * *

Yes and no. Yes, when there is no serious disease to contend with, and a good dependable location, reliable, competent assistance, and prices remaining above 12c to 15c. No, with prices as low as previous to the European war, and incompetent assistance.

Our sage ranges are not as good as in previous years on account of frequent mountain fires and inferior honey-producing plants and weeds crowding out the former superior honey-producing plants, and a great percentage of range wiped out or destroyed entirely. In some places it will pay only as a side line. M. H. Mendleson.

* * *

Yes; but it does not pay everybody. Lack of knowledge, lack of application, and lack of capital are the three rocks on which many a rosy dream has been shattered. You will notice that the most successful beekeepers are the ones who have gone thru as much training as would fit a man for any of the professions. The ones who have succeeded

in acquiring a competence in beekeeping would have done well in almost any line.

Albany, N. Y. Charles Stewart.

* * *

With a favorable location, and careful attention, the beekeeping business for an average of years will pay the commercial beekeeper; but if the let-alone methods are used, as is too often the case, then do not start beekeeping. N. E. France.

* * *

This question can not be answered in a word, yes or no. I have often correctly concluded, after a week or two of observation, that a young man with me would or would not succeed in beekeeping. It depends upon the individual, his circumstances, and his location. I refer to the latter, for a beginner has but little conception of an average location. There are, perhaps, more shipwrecks and heavy losses in beekeeping than in any other agricultural pursuit. The aspirant must be intelligent, thoro, prompt, observing. He should have read one or more good bee books, and then begin in a very small way, say two or three colonies; or have spent a season with a successful (not necessarily extensive) beekeeper. If a living depends upon the returns from the business, then there must be in reserve enough means to live on for a year without returns. A good way is to combine with something else until success warrants otherwise.

Brantford, Ont. R. F. Holtermann.

* * *

If one is or will become temperamentally fitted to care for bees, and will learn the fundamental principles of management, beekeeping pays. What one has done, others can do; and not one but many have proved that beekeeping pays. In what other line of agriculture can you work outside in fine weather, inside in bad weather, and have six to eight months' vacation a year, as in the Northern States? A rosy picture, you say. Yes; and if one will be businesslike, the majority must admit that the picture is true. Maximum returns can not be secured unless our management is correct.

F. Erie Millen.

* * *

Others have made a commercial success of beekeeping; so can you if the business is one you hanker after. It will give you all the food, clothing, and shelter that's good for you. So will many another business. But if you're a born beekeeper no other business will give you as much enjoyment added to your living. I know. I might have made more money at some other business, but I'd have been dead long ago. I've just started in on my 89th year, and there's just as much fun in living now as there was when I began keeping bees 58 years ago. More; for I've better health than I had then. The beekeeper has one handicap that the raiser of other stock has not; he has no legal right to his territory. I'd like to live to see that handicap removed, as it is in some other countries. C. C. Miller.



ANNE LESTER AND DADDY LOWE, BEEKEEPERS



By Grace Allen—Chapter VI

"DEAR Robert: Nations may rise or fall, but the world shall have honey. Daddy Lowe and I have seen to that—we and the bees. We have extracted. And wouldn't you, over there making the world safe for democracy and honey-eating, like to hear all about it? I thought so, it will make such a cheery contrast to mud and cooties. Do, by the way, tell me if the writers have been justified in putting so much emphasis on these two features of the war; they have gradually come to be the whole background of my mental pictures. Always, in my mind's eye, you are in the mud, tho you haven't made much reference to it yourself. But tho I picture an entire army fighting cooties, I admit that you, my dignified brother, remain an ever dignified exception. Perhaps you better not, even tho accuracy might require it, disillusion me—let me keep my sisterly pride.

"Well, to get to the extracting job. First of all, it really is a job. We talked about it a lot as June closed and July came, and at last Daddy Lowe said, 'Now.' So on Tuesday of last week, the second Tuesday in July, we put on the bee-escapes and otherwise made ready. Bee-escapes, Captain Brother, are clever contraptions designed to let unsuspecting bees pass down, out of their treasure vaults into the nursery, and not let them back. The intention is to have the honey that the beekeeper is going to take as free from bees as possible at the critical moment of taking. The next morning we took it off, 'we' meaning Daddy Lowe. I hovered around, of course, all eyes and 'Oh's' but the only practical thing I did was to open the screen door of the honey-shed when he came rolling in the wheel-barrows of honey.

"After it was all in, piled on one side of the room, the performance started. Mrs. Lowe came down to see the start, as she has always done, they say. She didn't stay long this time, but just her being there for a little while seemed to sort of consecrate the place. She sat in the little rocker that stays there all the time, to entice her out occasionally, looking around and blessing things with her look. I gave her a sample of the new honey, and she said it was the best they had ever had. Mr. Lowe laughed and said she had been saying that for twenty-five years, but she insisted this really was the best. I don't know how she could tell—she eats about as much lately as a disembodied spirit. But Mr. Lowe swung round, as he always does, to back her up most gallantly. She was undoubtedly right, he told her, this really was fine honey, and anyway the last of anything was always the best—good honey or happy years or almost

anything. And she said it over after him, with such a gentle smile, 'Yes, the last is the best.' "

Here Anne Lester laid down her pen and looked out of the window. Her own wise young instinct had told her to make her letters only chatty and cheery, never depressing, even before wise older people began advising it. But she was frankly worried these days, and Mrs. Lowe's tone and look haunted her. She sat perfectly still a long time, then with a little sigh started again.

"I don't mind admitting to you that the extracting of honey isn't quite so much to my taste as the yard work with the bees themselves. It is much more tiring, and it's more like work in every way. The other gets to be like work, too, when there is really a lot to do, and you must keep going, hive after hive, in a business-like way. But even then, it has a certain charm and fascination that holds me steadily to it. I hereby give you warning that after you come home, I shall continue to keep bees. Which means, of course, that I don't want to go back to the city, and I don't, tho I don't expect you to give up your work at the bank and become a farmer for my sake, like Theodore. That's the difference between brothers and Theodores! Anyway, I couldn't be happy if you gave up the work you enjoy so I could have one I enjoy. But I shall want to move as far out as seems reasonable for you to commute, where we can have a little place with country things around—great stretches of green, and climbing roses on the fences, and cinnamon vines and honeysuckle. I want some hollyhocks, too, and lilacs in the dooryard blooming, and things like that. Yes, and fruit trees and grapevines and strawberries and mint and an asparagus bed and things like that. Then I'll have my white-painted hives on green grass, under the fruit trees, with hollyhocks and roses all around; and when you come home, tired and hot and soulsick, from your noisy city with its shut-in old bank, I'll give you cold clinky tea with mint in it, and quietness and beauty, and let you listen to the humming of my bees. And after a bit you'll feel as tho something lovely had touched you, with a blessing in its hand.

"I seem to have run off my subject again. I really like a subject that is easy to run off from, like a road with leafy lanes and cool pebbly creeks leading off. It's easy enough to come back.

"Here, then, is how you extract honey. First you take a big comb, all sealed over, or mostly so, so as to be sure it is 'ripe,' then you rest the end with gentle emphasis

on an upturned nail that rests on a wooden arm that rests across a big empty can that rests on a coarse strainer-like wire that rests on another empty can. Have you the whole restful picture? Next you take your uncapping knife, which has been heating in a pan of hot water on the stove near which you are standing, and neatly slice the cap-pings off the honey, first one side then the other. The aforementioned upturned nail steadies the comb while you cut. The cap-pings drop into the empty can, while the honey still in them runs on down thru the wire into the lower part. Then you put this drippy, uncapped comb into your ex-tractor, which is another big empty can, about as high as your waist; at least, it would be empty if it didn't have various things in it—baskets made of stout wire and something else, tin, maybe, or something galvanized, and parts that fit into each other and turn. There's a handle—it's on the outside—and when you have a comb of honey in each of these baskets and turn this handle fast enough, out whirls the honey.

"Do you remember about centrifugal force, Robert? I do. We had it at school. There were twins, centrifugal and centri-petal. The books said one of them kept the earth from flying off into space and the other kept it from being drawn into the sun and burned up. I knew which was which for a while, but it was hard to keep them separate long at a time. Now I know, again, and will never have any more trouble with the twins. Centripetal force doesn't help us a bit in extracting, it's the other does the work. It doesn't do it all, tho. Somebody's got to turn the handle.

"Well, after the honey is thus centrif-ugally extracted, the combs are returned to the bees. You have to be careful to put them back on the hives towards evening, or the bees, smelling the fresh honey, get excited and lawless and start robbing one another's hives. Isn't it a pity bees and nations do that kind of thing?

"Later the honey is strained and put into barrels or big cans or little cans or bottles. We're doing a lot of that work now, and putting on labels. Mr. Lowe ordered some new labels last week and I told him he ought to make them read, 'Anne Lester and Daddy Lowe, Beekeepers.' Today he tells me he did! I don't know whether he's jok-ing or not, but I do know the 'Daddy Lowe' part would make a hit around here, for that's what so many people call him.

"Now you know all about extracting—maybe! Anyway you know enough to see that I'll need an extracting room at that little country place we're going to have when you come home. You can't tell, I may get to be such a big producer that I'll have a power extractor. Yes, they do have

such things. Isn't it wonderful? We never knew, and most people never guess, what a big business honey production is. The only trouble, tho, with my having a power outfit is that I'd have to have somebody around to run the machinery. I can say that to you safely—no danger of your starting at once to be an engineer. But I'd be scared to say it to Theodore!

"Speaking of Theodore, tho, I honestly think you do him an injustice when you refer to him as a slacker. He isn't that, Robert, he's just Theodore. You know as well as I what that means. He's like the darkey woman buying her mourning ward-robe. Remember her? When the clerk suggested that it wasn't really necessary to include black underclothing, she answered re-bukingly, 'When Ah mo'hns, Ah mo'hns.' That's Theodore to a T, and on thru the rest of the letters. When he does a thing, he does it. That's why he's out here, learning to farm! And when he believes a thing, he believes it. That's why he couldn't volun-teeer. You and I can't understand his view-point—to us it looks, as you say, 'absurd and puerile'—we can't see his side at all (if indeed, there really is such a side). But surely we must honor the quiet and courage-ous stand he has made for what he thinks right. He knows only too well how we and practically all his friends feel, but that doesn't seem to matter. He's being loyal to something inside. That isn't cowardice, Robert, it's courage.

"Then the really distressing part has just come. He decided to accept the draft with-out any claim for exemption because of these convictions, answered his call—and has just been found unfit. His heart didn't stand the examination. Now don't joke, dear, and say I could cure his heart! It isn't any joking matter for a young man like Theodore to find he has something radi-cally wrong with him. I am trying to per-suade him to give up this farm notion, and go back to the office, where the work is so much lighter. He merely looks hurt and starts talking about crop rotation and silos, certain other subjects being forbidden. And he isn't a bit interested in either of these, and he hates perspiring and getting his hands dirty. But at that he's some Theo-dore, and you shall not malign him. Which surely reverses our attitudes, from the time you first brought him home with you!

"I wish you could see how quietly the level sunlight lies along the hills. The world is utterly peaceful here, utterly love-ly. Some day it will be so over there. Then you'll come back and tell me how you helped make it so, while we drink that iced and minted tea by the hollyhocks in my own beeyard.

Lovingly,"

Anne."



THE HONEY PUMP

Honey is Not Injured by Pumping. Later Heating Expels Air

The more honey is agitated, the more quickly it will granulate. This is why extracted honey, as a rule, granulates more quickly than comb honey from the same source. This is due principally, no doubt, to the honey flying out in fine streams against the side of the extractor. In this way considerable air is introduced, which seems to be unavoidable. Later heating expels this air, or a large part of it.

Theoretically, a pump should further agitate the honey. How much difference this makes from a practical standpoint we have never been able to determine. We honestly feel it is a small matter and that the pump itself when working properly does not cause any additional cloudiness, or tendency to granulate.

If there is a leak on the suction side of the pump, considerable air will be introduced into the honey. This we have found by actual experiment. Or, if the capacity of the pump is much greater than that of the extractor, so that a good share of the time the pump is sucking air, there is no question but that considerable air is introduced into



Apiary of H. T. Wagner of Redlands, located in Live Oak Canyon.

the honey; for it is only necessary to watch the delivery pipe from the pump in the honey-tank, to see the quantity of bubbles of air rising to the surface. The larger bubbles come to the top, but the smaller ones remain in suspension. The ideal arrangement is to have several inches of honey always in the bottom of the extractor. Practically speaking, it is not always possible to do this, but it is an easy matter to slip the belt off the pump in case the latter gets ahead; or, if it is continually ahead, the pulley on the extractor that drives the pump, should be slightly smaller, of course. It is difficult to make these pulley ratios just right for all conditions. For example, some beekeepers do not care about extracting the combs

clean. They get nine-tenths of the honey, in perhaps, three-fourths actual running time of the extractor, and rather than take 25 per cent more time to get the additional 10 per cent of honey, they will let it go, figuring that the bees will simply put more honey on top, and that there is no need in extracting the combs clean. Nearly everyone who has given the matter any study, however, feels that it is better to extract the combs clean every time.

The difference in the thickness of the honey does not greatly affect the proper speed of the pump in relation to the speed of the extractor; for the thicker the honey, the longer it takes to extract the combs clean and, of course, the longer the pump has to do its work. The thinner honey, which can be pumped more quickly, takes less time in the extractor to extract. H. H. Root.

Medina, Ohio.

RESPECTS BEES

Will Find Queen as Mark Twain Climbed Alps

A short time ago Charles Staff wrote us that he had five hives of bees which he kept, not for honey, but for pollenizing fruit trees, melons, and cucumbers, and he asked if it would be all right to permit swarming and simply keep the old colonies. It seemed such a pity to lose those swarms that we suggested preventing swarming and at the same time running for a little extracted honey, as suggested in the June Beginners' Talks. To this he replies as follows:

"Thank you very much for your letter of May 2nd, and the advice contained therein.

"I had a few friends at my house yesterday and we discussed this suggestion of yours about finding the queen and removing her. I proposed that we should all do it in a group or a swarm, as it were, or en masse. We conservatively estimated that there were about ten million bees in the hive, and it did not seem quite safe for any individual to tackle that whole bunch and forcibly remove the queen. I thought that probably if there were a great many of us, some one might succeed in accomplishing the result, even tho the fatalities might be high. All of my friends, altho some of them have been "over the top" on the other side, one and all gently but firmly refused to entertain the proposition, so the queen still remains where she is and we have decided that we will not remove her.

"May I, in all politeness, ask you what you think the bees are going to do if I should attempt to follow your advice? I want you to understand that the bees I

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have are good healthy, husky bees, and they do not tolerate any undue familiarities. There is only one hive that I have which I would attempt to handle in the way you suggest and that is the one that contains the dead bees. I am quite willing to find the queen in that outfit and remove her. The one word in your letter which stands out and appeals to me most strongly is the word 'run,' when you make the suggestion that it would seem worth while to 'run for extracted honey.' Just eliminate everything else in your letter and leave the word 'run' and I will say 'amen.' For the rest, dear brother, nothing doing!

"Perhaps you might wonder from the foregoing why I have any bees at all. I will confide to you that up to a month ago I had a man working for me that had the strange hallucination that one could play with the bees and get away with it, and he it was who brought in the hives and looked after them. As far as I am concerned, they are an inheritance. All I am wondering is how long they will stay on the premises if I am willing to leave them strictly alone. I would like to have them stick around to fertilize the fruit trees and the melon vines. Whatever honey they make they can keep, or anybody else is welcome to it if they have the nerve to come and get it.

"I am a subscriber to 'Gleanings in Bee Culture,' and I love to read about the bees; but as for finding the queen and removing her, I will look for the queen the way Mark Twain climbed the Alps, i. e., with a telescope.

Charles Staff.

Royal Oak, Mich."



IDEAS ON EXTRACTING

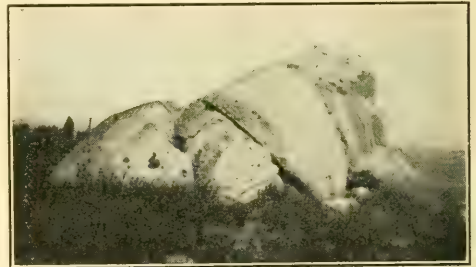
With Suitable Knife, Deep Combs Easier Extracted than Shallow

A correspondent, who has been an extensive comb-honey producer for many years, writes that he would like to run a little more for extracted honey and wishes advice on the style of combs to use for extracting. He states that he has quite a surplus of comb-honey supers which would go together in pairs to just fit combs of Langstroth depth, but has been advised that shallower combs would give better results, because they are more easily uncapped and may be used with his brood-chambers which are Quinby depth without excluders.

I have gone very carefully into the claims of those who advocate shallow frames for extracting, and with all respect for their wisdom, I can see only two or possibly three advantages they may have. When used over deep brood-combs they may enable one to dispense with excluders to advantage. When the colonies are weak, or when short

light flows of different varieties are to be kept separate, their smaller capacity may be an advantage. They are also more convenient for beekeepers who lack physical strength and do not run a large enough business to employ labor. Any advantage they may have over a deeper comb in uncapping is the fault of the knife and not of the standard comb. All will remember the old riddle, "How long should a man's legs be?" The answer is, "Long enough to reach the ground."

The disadvantage of shallow combs in extracted-honey production is obvious: So many more pieces to handle for the same amount of honey produced. Whether they may be used without wires and cost slightly less need scarcely be discussed when one considers that there is practically no limit to the length of their life. And as for time-saving, one of the best "records" in extracting I ever made was with supers which held 100 pounds of honey each, in 11 combs. It was a four-frame non-reversing extractor turned by hand; but the quantity of honey coming from each set of four enabled us to roll up a record which would do credit to modern machinery. I would not object to extracting with combs deeper than the Langstroth, but know of nothing now to persuade me to use anything shallower.



A stationary beehive near Perris, Cal. A colony has occupied a crevice in this rock for many years.

The knife we use is what is called a "sandwich knife," with a copper steam-jacket added by a local smith. The blade is twelve inches long and about one and a quarter inches wide. As there is only one cutting edge, it is necessary to decide whether you prefer to cut up or down when putting on the steam-jacket. Of course the handle is straight in line with the blade, so we escape the tiresome offset of the stock knife, which is only a relic of the days when the beekeeper laid his comb flat on the kitchen table and scraped off the cap-pings with a little curved knife. When the inventor turned the handle of his little thin knife up at an angle to keep his knuckles out of the honey, if at the same time he had only thought to make his knife longer so

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he could get back behind the edge of the comb, what an age of wrist-ache he could have saved succeeding generations of beekeepers. All it needed was the long blade, stiff enough to keep its shape. I am indebted to W. A. Chrysler of Chatham, Ont., for this idea; and, after trying first it and then either the Jones or Bingham knife, there is no hesitation in deciding which is most rapid and comfortable, even when used cold as the first one came to me from Mr. Chrysler. When a real good head of steam is added it is nothing short of a revolution in uncapping.

The rate at which cappings may be removed from honey depends directly on the size of the comb and the ability of the knife to stay hot until the whole sheet is removed from one side. It also depends on the combs being flat and evenly bulged slightly beyond the frame. The long knife which reaches easily across the largest comb and beyond, has the frame for its bearing at both ends: the steady hand and jet of live steam do the rest. After using these knives for a few years our combs are just like boards which have been thru a planer for evenness, and are a joy to the uncapper.

It is of the greatest importance to have a good head of steam. We use a boiler which just covers a three-burner oil stove and holds five or six gallons. It is placed in an adjoining room to keep the heat and fumes away from the workers, and the steam is piped along the floor to a point where rubber hose can be attached from the knives. While we have two knives attached, one active young man can just about keep the eight-frame extractor supplied; and our record last summer, repeated several days, was 5,000 pounds extracted from Langstroth combs in 10 hours, with two men working and the extractor man having an easy time. In conclusion let me pay a slight tribute to the Peterson Capping-melter and the Honey-pump. We would not think of dispensing with either.

Ontario, Canada.

Morley Pettit.

HUNDREDS OF HIVES BURNED

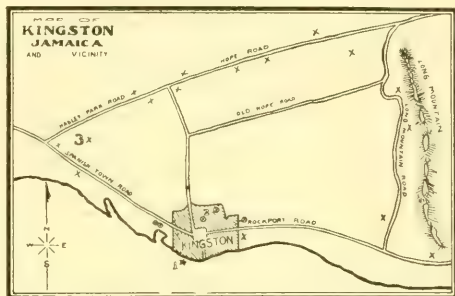
Jamaica by Radical Treatment Eliminates Foul Brood

In your May, 1919, issue of *Gleanings in Bee Culture*, page 319, there is a paragraph which states that foul brood has reached Jamaica. Some people might get the impression that it is still here, which is not the case. I will state briefly what occurred.

In March, 1918, I found that Cuban honey was being brought to Kingston to be transhipped to England, and this honey was being carted from one wharf to another.

During transit some barrels burst, and the bees took it up. I reported this to the Director of Agriculture, and also the fact that foul brood is in Cuba, as I had information on that point from beekeepers who had seen it there. I also pointed out what would happen if the importation of this honey was not stopped. For various reasons this was not done.

At the end of May the director got the Governor to make an order in which all owners of bees within three miles of Kingston were to report to the director the site, number of hives in their apiaries, etc. This



"Prescribed Area" in which no colonies are allowed.

area was called the "Prescribed Area" and no one could move hives of bees into, out of, or within the area without permission from the director. About the 15th of June I received instructions from the director to commence making a quarterly examination of all hives within the area.

The first case of foul brood (American) was found on Dec. 19th, and others quickly followed. In the accompanying outline map the crosses with a circle around each are the apiaries that had foul brood. The other crosses are the apiaries on the outer edge of the area which were burnt as well as all other apiaries which were also within the area, tho not marked on the map. The cross in the harbor marks the place of the source of infection, that is, the place where the schooners were anchored. No other apiaries within the area were found infected up to the time of burning, but on the night the hives were burnt one was found to be infected, attention being drawn to it by the smell.

When it was discovered that foul brood had got a footing amongst the bees in Kingston the beekeepers within the area met the director to co-operate with the Government to make a determined effort to stamp it out, before it spread further. The Government finally decided to take all the hives over, compensate the owners, and burn all the hives in the area, to make sure that it got no further. I received instructions to burn all the hives on the nights of Jan.

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13th and 17, 1919, and also to take over all used beehives, frames, etc., and burn them, and to disinfect extractors, honey-boards, etc. The honey-boards in apiaries that had disease I was ordered to burn.

The area has been quarantined for one year. No bees are to be kept within it and no one can take bees thru the area without a permit. A reward of five dollars is given to anyone who finds a swarm or bees within the area and reports the same. All importation of foreign honey into the island is also prohibited.

There is no doubt that the prompt action of the Director of Agriculture saved the situation, and also that this method of stamping out foul brood the moment it showed itself was effective and thoro. To my knowledge there is no foul brood in the Island. The total number of hives burnt was 1,719.

Ch. Noel Eddowes.

Gov. Inspector of Apiaries.

Jamaica, B. W. I.

[That was certainly very radical treatment. We shall be interested to learn whether it proves effective.—Editor.]

BIG BEEKEEPING

Largest Transaction in Pound Packages and Queens in the World's History

In this age, when beekeepers are becoming numerous, there are many who are never heard of and who receive little or no publicity thru any of the bee journals. Such a beekeeper is Harry R. Warren of Nevada, who has been operating over 1,000 colonies. While Mr. Warren has run 1,000 colonies in the past he ordered 6,000 pounds of bees and 2,000 queens from J. E. Wing of San Jose this season, to increase his yards both in number and size. This is the largest transaction in pound packages and queens in the history of the world. It represents an investment of over \$16,000, and is surely proof of the magnitude of the beekeeping industry today.

Last season Mr. Warren, who is young and energetic, produced, or his bees did, four cars of extracted and comb honey, the source from which it was derived being alfalfa and sweet clover. The bees are hauled on two Ford trucks which he claims are very serviceable. Last year, in addition to the four cars of honey sold, Mr. Warren disposed of two cars of alfalfa seed from his ranch.

Owing to the rush of other work and to being short-handed on account of the war, extracting had to be postponed until winter when the honey was removed from the hives while the temperature was below zero. The supers were hauled to the extracting-house on sleighs and were kept warm continuous-

ly until extracting ceased. Fires were kept burning both day and night to make extracting possible. The comb-honey colonies were tiered up until they resembled miniature skyscrapers. Whenever the bees needed room an additional super was given, but time was valuable and the honey remained on and was given an extra ripening, whether it needed it or not. The honey produced was of a very high grade and fine quality and flavor.

If Mr. Warren was rushed with his thousand colonies and other work, we predict a busy season for 1919 when he has in excess of 3,000 colonies. In his part of the Union enormous crops are produced, and beemen reckon their produce by the ton and earload.

San Jose, Calif.

Bevan L. Hugh.

RAISING COMB HONEY

Minnesota Beekeepers Decide on Best Comb Honey Plan

The Minnesota Beekeepers' Association appointed a committee to report on the best comb-honey plan for beekeepers with not more than five colonies (March issue, page 165).

The plan they decided on does not go into all the details of comb-honey production, but rather has to do with the control of swarming. Two plans were suggested.

The first is for the beekeeper who frequently examines his colonies and knows what is going on inside of the hive. When there is any probability of the bees preparing to swarm, the beekeeper should examine each colony every 8th or 9th day and cut out any queen-cells which may have been started. If the colony persists in building queen-cells and some are found to be well advanced toward completion, then he must treat the colony. Remove the colony from its stand and in its place put another hive. Find the queen and put her on a frame containing brood in all stages, and place this frame in the center of the new hive. Fill out this hive with frames having full sheets of foundation, or starters. On this hive place the supers that were on the old colony. Then proceed to brush off the bees on the ground in front of the new hive, leaving plenty of bees on the combs to care for the brood. Care must be taken not to shake or jar the combs containing queen-cells. Then place the old hive containing the brood to one side of the new hive, with the entrance at right angles to that of the new hive. Each day turn the old hive so as gradually to bring its entrance close to that of the new hive. At the expiration of seven days from the time of brushing the bees, remove the old hive to another part of the apiary some distance away. The fly-

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ing bees will leave for the fields to gather honey and will enter the new hive on which the supers were placed. When the young queen emerges there will be no flying bees in the hive and so she will be unable to take out a swarm. The remaining queen-cells will be destroyed without any assistance on the part of the beekeeper.

The other plan is for the beekeeper who does not open his hives, or at least does not want to look for a queen. When the prime swarm issues remove the old hive from its stand and in its place put another hive, as in the plan just given. But instead of using frames containing sheets of foundation or starters, fill the hive with drawn combs

stance, the above method may give him more increase than he desires. In that case he can move the old hive from one side of the new hive to the other side every seven days until the brood is all hatched out and then shake the remaining bees in front of the new hive. Other variations will suggest themselves to the thoughtful beekeeper. In order to delay swarming as long as possible the first super should be put on early, Dr. C. C. Miller says, "about ten days after the very first white-clover blossom has been seen." This super should contain sections with full sheets of foundation and one or more bait sections. Use nothing less than full sheets of foundation in the sections, and it is better to use also bottom starters.

Minneapolis, Minn. Chas. D. Blaker.



INEXPENSIVE WAY TO START

Stocks of Bees Secured from Bee-Trees Along with Experience

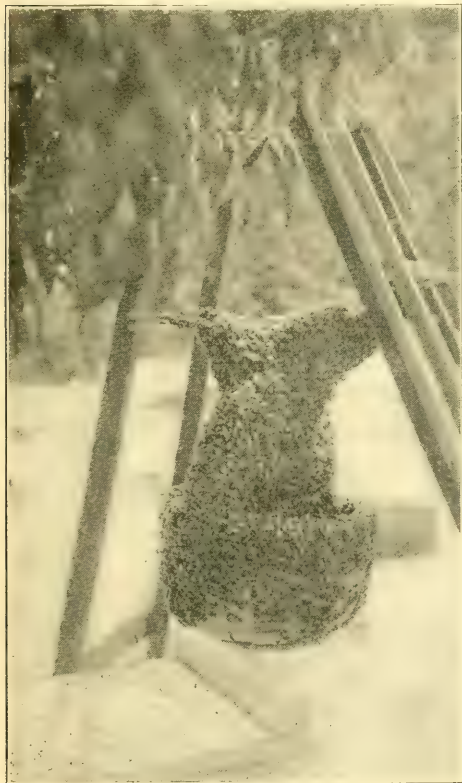
When I was a small boy I disliked the honeybee for a very simple reason. One of our neighbors kept about 12 or 15 colonies of bees, which came for water that was spilled around the cistern in my father's back porch. I often stepped on them with my bare feet and got stung. I had but little idea of their mission to man, so I made a paddle and often sat and watched for the bees, killing all I could. Soon one of my older brothers began cutting bee-trees. My father usually helped him, and I was sometimes allowed to go along. This I thought was great fun; but, being afraid, I was careful to stay at a safe distance, often getting behind a stump or tree, begging them to bring me a piece of honey. My brother laughed at my fear; and as I grew older I resolved to act bravely regardless of the stings. Soon fear vanished, to be supplanted by interest which resulted in a desire to have bees of my own.

I placed a box hive in a tree, hoping to catch a swarm, and began hunting bee-trees. Failing in this I gave it up until the year 1915, when I found a swarm hanging on a small walnut tree. It was a late swarm, but I decided to have it nevertheless; and, having no hive on hand, I used a nail-keg.

The next spring I bought four good hives and supers, and began hunting bee-trees in my spare time. I succeeded in getting a colony for each hive. By giving super room and cutting out queen-cells I managed to get along fairly well. Altho I did not secure much surplus I learned a great deal, and also derived much pleasure from the undertaking. I am now looking forward in the hope of some time joining the ranks of successful beekeepers.

Medina, O.

B. B. Alexander.



A swarm worth while.

and then place the supers on top as in the other plan. Hive the swarm in the new hive which is now on the old stand. Then set the old hive to one side of the new hive and manipulate it exactly as in the other plan. Some members of the committee prefer full sheets of foundation in the brood-chamber, no matter which plan is followed.

The individual beekeeper will be able to work out variations to suit himself. For in-

I HAVE never been interested in skunks. I don't know that I have ever lost a bee by them. Yet I thank O. L. Hershisier for forcing the malodorous subject upon our attention on page 364, June Gleanings. There are thousands like me who don't know that they have ever lost a bee by skunks, but do they know that they have not lost by the "varmint"? And Mr. Hershisier does well to stir up a smell on the subject. Who knows but some of the mysterious cases of colonies going wrong with no apparent cause may not be attributable to the miscreant under consideration? At any rate it may be a good thing to start a general effort to have all laws repealed that especially look toward the protection of any animal that parades under the imposing name of *Menhitis mephitica*, or appears just as plain skunk.

* * *

Wallace C. Greenleaf thinks I overestimate the number of cells in a Langstroth frame in the figures I give on page 232. Instead of counting 3,650 cells on one side, he thinks it should be 3,318. He says "In the foundation I have been purchasing I find that there are only 52 cells in 11 inches," and he estimates that there are 26,838 cells to the square inch. Apparently, however, he fails to notice that I said, "if there are 5 cells to the linear inch," and if he keeps in mind that I worked on that basis I am sure he will find my figures correct.

Evidently, however, he would question the assumption of 5 cells to the inch, and that raises the fundamental question, "How many worker-cells are there to the linear inch?"

In one of the latest books, "Beekeeping," by Dr. Phillips, we find that worker-cells "are about one-fifth of an inch across." Dadant's Langstroth says, "They are usually somewhat larger" than five to the inch. Root's A B C and X Y Z says they are "about five to the inch," but "it will be found that they are by no means all of them five to the inch" as the cells are not perfect hexagons. Perhaps no one has gone into the matter more painstakingly and thoroughly than T. W. Cowan. He says, "The average size of a worker-cell between the parallel sides is $1/5$ of an inch, or 0.2." He gives a summary of a surprisingly large number of experiments, and of one set he says: "In order to reduce the possibility of errors occurring from measuring only one cell, we selected ten cells, which, allowing $1/5$ of an inch to each cell, should occupy the space of 2 inches. In all, 36 measurements were taken, and we found the greatest aggregate diameters of any one series of ten cells to amount to 2.11 inches, and

STRAY STRAWS

Dr. C. C. Miller

the least to 1.86." In other words, the diameter of a cell varies from .211 to .186 of an inch.

With these data from Mr. Cowan, and remembering that

to get the number of cells to the square inch we divide 1.1547 by the square of the diameter, we find with the average cell (.2 in diameter) there are 28,867 cells to the square inch. With the largest cell (.211 in diameter), there are 25,936 cells to the square inch. With the smallest cell (.186 in diameter) there are 33,377 cells to the square inch. (Incidentally it may be said that if there are 52 cells in 11 inches there are 23,133 cells to the square inch; not 26,838, as Mr. Greenleaf has it.)

* * *

On page 369 I said "the best drone is the drone with the best grandmother," and a footnote wonders whether it would not be more accurate, instead of saying "grandmother," to say "grandparents." It would be a grave error to ignore the influence of the drone with which the grandmother mated. Some think it even greater than the influence of the queen herself independent of any mating. But when we speak of a laying queen do we not always include the drone she met? On page 369 I said: "Suppose two virgin sisters, A and B, just alike in every respect. A meets with the best drone ever, and B with the worst ever. A will rear good workers, and we shall call her a good queen. B will rear poor workers, and we shall call her a poor queen." If that is correct then clearly when speaking of a laying queen we include her drone consort. Now suppose some objector arises and says: "It is not accurate to say that A is the better queen; she is no better than B, accurately speaking, only she met a better drone." For one, I think I should feel like saying, "Put him out!" I wonder, Mr. Editor, if you wouldn't feel somewhat the same way. [Instead of saying "grandmother," leaving the reader to infer we also had in mind the drone consort, we believe that in an article especially emphasizing the influence of the drone it would be quite worth while to say "grandparents." Then even the beginner would catch the point.—Editor.]

* * *

A Nevada beekeeper gets best results in straight even combs in sections by using top starters that are V-shaped, page 353, "under his conditions." I hope those conditions do not generally prevail. Under my conditions I have no trouble with full starters, and if my top starters were V-shaped I'm sure I should have less honey and not so good combs. Drone comb would certainly fill some of the vacancies, and excluders

would be necessary to keep the queen from laying in that drone comb.

* * *

"From October till May an eight-frame Langstroth seems preferable to a larger one," says J. E. Crane, page 370. Y-e-s, **provided** the beekeeper always sees to it that there is honey enough in the hive so that the bees will not starve during that time.

* * *

"It is not considered practical to produce comb honey in outyards, except in certain favored localities," says J. M. Buchanan, page 360. Coming from such an experienced beekeeper, that makes one wonder just why a locality that does well as a home yard for sections will not do as an outyard. All my work in outyards was for sections, and Mr. Buchanan's view is new to me.

* * *

You admit, Mr. Editor, page 368, that you along with me and certain others know precious little about the sense organs of bees, and ask, "Won't the others please admit the same?" I can't speak for the other fellows, but I'm ready to admit for myself—confidentially, of course—that I have a good stock of ignorance, not only about bees' sense organs, but about a lot of other things about bees. But please don't expose me.

* * *

Mrs. Demuth says, page 359, "When the honey flow is good we go over the super every three days." J. M. Buchanan says, page 361, "A visit is made about once a week during the honey flow." Isn't either one of these practices rather intensive, especially for out-apiaries? I have always thought I did well enough to get around once every ten days, varying from 7 to 11 or 12 days, according to weather and other circumstances.

* * *

The carbolized cloth, with which to drive bees, has been rather popular in Great Britain, but for some reason has been used little on this side. I am rather pleased to note that J. M. Buchanan uses it (page 361). Note that he leaves it on the upper story "two or three minutes" to drive a queen down into the lower story, and "a minute or two" when driving bees down out of an extracting-super. Some have objected that a carbolie taste and odor is given to the extracted honey. I wish Mr. Buchanan had told us about that.

* * *

E. S. Miller says, page 365, that it's all right to breed from the best, but it's hard to tell which is the best, and "it certainly is not always the colony which stores the most honey," and explains that the colony with the best queen may fall short on account of unobserved swarming. Now look here, my good brother of the floury name, do you think that's playing entirely fair? Of course an unobserved swarm at the be-

ginning or middle of the harvest would cut down the crop of that colony. So it would if an unobserved thief should carry off half the crop. But that's no argument why the relative value of queens should not be measured by the yields of their respective colonies, of course making proper allowance for items that interfere. And you dassent tell any better way.

* * *

"Why not just exchange places with the laying-worker colony and a good colony and then requeen the former?" (page 379.) Are you sure you'd be any better off after making the exchange than before? You have merely added a lot of field bees, and they're the ones antagonistic to a strange queen. By the way, is it not hard to get a queen accepted in a laying-worker colony largely because the bees are old? Remember there's no one bee to which all have a strong attachment. [This reasoning sounds all right; but, when this method is put up to the bees, so good an authority as L. S. Griggs of Michigan finds it quite successful. We would be interested in hearing from others who have tried it.—Editor.]

* * *

It isn't nice to have a colony swarm just about the time it is doing its best work in sections. It will help at least a little to avoid that if you give supers early—before they are really needed—and be sure to put at least one bait section in the first super you give to a colony. That bait is a section that was partly built out the previous year, and emptied out by the bees. If this is your first year of beekeeping and you have no such sections on hand, you can do just as well—likely better—to cut out a bit of brood-comb and fasten it in a section. The older and blacker, the more promptly will the bees take possession of it. It will be anything but a fancy section, but it may give you a number of sections you would not have without it.

* * *

A Canadian correspondent refers to Bro. Valentine's second plan of increase, May Gleanings, page 295, and says: "Imagine giving a virgin queen to a lot of old bees at the time of the first frost, when in this locality it is nearly impossible to introduce successfully any kind of queen. Is it the fact that it is so helplessly queenless that they accept a virgin then? What do you think of it?" I should expect trouble except with a **very young** virgin. I think it is a fact that a virgin not 24 hours old will be accepted at any time in any kind of a colony, even in a colony with a good laying queen. Please do not understand that to mean that you can requeen a colony simply by putting a virgin in, for altho a virgin will be kindly accepted as a baby in a colony having a laying queen, just as soon as she begins to put on airs as a young lady she will be hustled out of that colony in short order.

WE have heard all our lives of those bees living in the rocks in southern California, and it was no small pleasure to look at those pictures on pages 355 and 356, June Gleanings, all characteristic of California. By the way, I enjoy pictures of bee yards, as they frequently give us a glimpse of the surrounding regions, so in time we come to have a very good idea of the topography of our great country.

* * *

On page 364 our friend Hershiser indicts the skunk for trespass and petty larceny. What is more he proves his allegations true beyond the shadow of a doubt. The skunk probably does far more damage in our apiaries than in our poultry yards, but works so quietly and persistently that he must be classed as a nuisance. When I find their depredations too great to be borne patiently I have notified trappers in the vicinity and these soon reduce them to a reasonable number. The high price of skunk fur at present makes it worth while to trap them.

* * *

The papers are reporting these days in great headlines of the success of crossing the Atlantic in a flying machine. It was just about a hundred years ago that the first steamboat crossed from America to Europe, and this was the cause of great rejoicing; but it was twenty years later before ocean steamships were a success. It may be as long before flying across the big pond will be safe. But the fact of special importance to beekeepers is that the food supplies of some of these airmen consisted of chocolate, bouillon, water, and honey.

* * *

A rather amusing item is that at the bottom of page 365: "When you have a swarm, do not go queen-chasing. Watch for pollen going in." * * * If no signs at the end of the third week, have a thorough examination." This is quoted from H. C. C. Carter, in Bee Craft. Watch three weeks to see if a new swarm is carrying in pollen, to discover whether they have a queen or not, when you can open a hive in two minutes and know at once. This method might answer very well if we expected to live as long as some of those old antediluvian patriarchs; but in these days of railroads, automobiles, telegraphs, and flying machines three weeks is a rather long time to learn whether a colony is queenless or otherwise. [A part was accidentally omitted. The advice was to wait two weeks before looking for eggs in the old stock. If no pollen was seen going into the hive the third week, examine carefully. Surely no one had any

SIFTINGS

J. E. Crane

idea of watching that colony three weeks. And, by the way, he was speaking of the old colony, not the new one. The chances are there would be no laying

queen for two weeks any way; and we remember Dr. Miller once said he hardly thought it worth while to look for eggs much short of three weeks. Of course, during the third week one would probably see a little pollen going in; but as soon as the queen began laying, a much greater quantity would be noted. We ourselves have always been better satisfied with inside rather than entrance observation, and yet it may be that our Bee Craft friend is not so far wrong.—Editor.]

* * *

There seems to be a difference of opinion between Dr. Miller and the editor, on page 368, as to the value of a queen-excluder or sieve in finding the queen. It makes a great difference **when** you look for queens. In May, when colonies are not very strong in numbers and the queen at her largest size we rarely use a sieve; but in or about swarming time, when the hive is crowded with bees and the queen reduced in size, we find forcing the bees thru an excluder most helpful.

* * *

A report of the discussion in the American Bee Journal on the best methods of work for a bee inspector is of unusual value. Police work is no doubt of value, but alone in this section it is of little permanent value. It is comparatively easy to go into a district, examine the various yards, and tell the owners of those having diseased bees that they must clean up their colonies or you will have to destroy them in twenty days. When you come around again in twenty days you will doubtless find a large per cent of the colonies as they were on your first visit. You may destroy them, but next year you will be very likely to find most of those beekeepers who have tried to clean up their bees have just as much disease as in the previous year. In a wooded country you may destroy every diseased colony you find during one season; but, if diseased bees have escaped to the woods, you may expect more or less disease the next year. On the other hand, I know of successful beekeepers where disease exists all around them, who are able to keep bees successfully and profitably. It is of little permanent value to destroy bees unless you teach beekeepers how to succeed where disease exists, and how to keep it under control in their own yards while it is all around them. I can not help thinking that my best work as inspector has been in teaching beekeepers how to overcome disease by proper management.

FOR some years back there has been a growing tendency to include a breakfast alcove or some sort of small breakfast room in the plans for new houses. When I first noticed such a plan I regarded it as just another foolish fad which would increase the housekeeper's work by giving her an extra room to care for. This past spring when one member of our family was away at school, another was away on a prolonged business trip, and the problem of securing adequate household help was most acute, the breakfast-alcove idea began to look alluring. While putting the dining room in order after meals I found myself estimating how much time could be saved if we had an alcove off the kitchen.

Just about that time I came across a page of illustrations of unusually attractive breakfast alcoves. After studying them I would find myself in the kitchen, trying to figure out a nook where we could put one. Our kitchen is not large; there is a screened porch opening out of it at one corner, a door opening on steps leading down to a little greenhouse at another corner, and the rest of the space is filled with cupboards, sink, table, gas range, cabinet, and doors. At one corner of the kitchen a door opened into a little pantry, five feet, nine inches by four feet, seven, to be exact. That had been intended for food only, as there is plenty of cupboard space in the kitchen for dishes; but as a food pantry it was a miserable failure, for the reason that it could not be kept cool. Just under it steampipes entered the basement to heat our house and the one beyond from a central heating plant, and altho the pantry had a good-sized window, which was always kept open, it was apt to be as warm as a living room even on the coldest winter day. The food had therefore deserted its warm shelves and taken up its abode in the storeroom and on the screened porch where the ice box is kept, and the pantry had degenerated into a catch-all for odds and ends.

One day after poring over my page of alcoves I happened to open the pantry door, and right then and there I had a vision. The unattractive oilcloth-covered pine shelves, drawers and cupboards "faded out," movie fashion, and in their place I saw a dear little room with soft, grayish walls, ivory-finished woodwork, a built-in table with mahogany finished top, flanked on either side by built-in ivory seats with high backs. At the window were creamy net curtains and on the dark table top was a doily with a slender vase of flowers. That was a delightful vision.

Now, after weeks of annoying delays my vision has materialized, and it has done so

OUR FOOD PAGE

Stancy Puerden

in spite of the fact that the nice man, who for 21 years has helped me make my dreams come true, was at that time on the wrong side of the Atlantic

ocean. If you have ever done any remodeling you know the ways of carpenters, how they will begin a piece of work, tear up things at most inconvenient seasons and then, before they have finished your job, desert to begin some other work. Then when you are ready for the decorators they too will fail to come at the time agreed upon and put you off again and again. We were doing over our upstairs rooms by putting in new floors, having the woodwork enameled ivory and papering, and the little breakfast room was to be worked in at the same time. When we received a cable to the effect that the traveler was to arrive home ten days before we had expected him, wasn't there consternation in the Puerden household? The utmost concession that we could wring from the delinquent carpenters and decorator was a promise to see that the alcove was finished, but as for the upstairs work that could not be done, of course.

Well, the head of the family returned to a home that was redolent of turpentine, oils, and wax, the upstairs rooms littered with brushes, paint cans, and furniture out of place, but the pocket-edition dining room was complete, just finished that morning, and he was just as surprised and delighted as the children and I had known he would be.

I have never seen any dimensions for breakfast alcoves and their built-in furniture and therefore with no architect available I had to figure out for myself the dimensions to give the carpenters. Of course, as to length of the seats and table, it was Hobson's choice for they could be no longer than the width of the room and one would not wish them shorter. The seats are therefore four feet, nine inches in length, sixteen inches in width and eighteen inches in height at the front, sloping down slightly to the back. The back of the seat is nineteen inches in height and has a comfortable slant, about like an ordinary chair back. The space underneath the two seats is enclosed to afford storage space, and the board enclosing this space also slants back to make a comfortable space for the feet.

The table is 30 inches in width, exactly the width between the seats, and is 44 inches long and a little under 30 inches in height. One end of the table is hinged just under the window sill and the other is supported by two legs which are joined just above the floor. The whole effect is similar to a section in a Pullman car when the porter puts a table between the seats.

By drawing up a chair at the end of the

table five can eat breakfast or lunch in comfort. Our dinners we usually eat in the dining room as the table is hardly large enough for a dinner when all the family are present. When several of the family are away the few remaining often dine in the alcove. Being a reformed pantry there is a pass cupboard door leading into the dining room, and the small girl of the family thinks it will be great fun to entertain two or three of her friends in the alcove while the family is eating in the dining room as they can be easily served from the dining table through the pass cupboard door.

After using it for a number of weeks do we find that our tiny breakfast room saves enough work to pay for itself? Indeed we do. There is some difference between "tidying" a room eighteen feet long and sweeping the crumbs from a bit of linoleum four feet, nine inches by 38 inches, for because of the built-in seats that is all the floor space there is in the alcove and it takes but a moment longer to sweep that when sweeping the kitchen.

It has been quite amusing to watch the expression on the faces of friends who have happened in and wished to see our alcove. Some of the men have looked dubious, especially before it was finished with the table in place, but every woman has enthusiastically approved, and most of them have begun to figure out how they could contrive a similar one. I believe there are few houses where something of the sort could not be arranged. If you have a pleasant, roomy, old-fashioned kitchen a corner of it might be used either with or without the built-in seats and table, and it need not be partitioned off from the kitchen. In some cases the end of a long, narrow pantry could be spared for a breakfast room. It is sometimes practicable to enclose a part of a porch. The space needed is so small, and the amount of time saved is so great that it is well worth the effort.

If I were about to build a very small house for a small family I should build it without a dining room, with a breakfast alcove off the kitchen, and a large living room, in one end of which a table could be set when there were a number of guests.

Altho the patient Gleanings photographer did his best it was almost impossible to obtain a good picture of our breakfast alcove on account of the doorway.

Honey as a Food for Infants.

Here is a worth-while honey story which comes from Florida. A lady living near Jacksonville was unable to find a food which agreed with her baby. She finally tried sweetening the baby's modified milk with honey, and the baby not only digested well the food thus prepared but gained rapidly in weight. I hope to have a further report of this interesting baby later on.

This is not the first time I have heard of honey used in modified milk for babies, but it happens to be the first report that has

come to me personally. If any of the readers know of similar cases I should be very glad indeed to hear from them.

By the way, when you write to me please do not apologize for taking my time. The letters I receive from kind readers are a delight and inspiration, even if I do not always have time to reply promptly.

CURRENT AND RASPBERRY JELLY.

3 quarts red currants	Water
1 quart red raspberries	Sugar or honey

After washing and preparing the fruit, cover with water and cook until soft, turn into a jelly bag and let drain without squeezing. Measure the juice and for every cup of juice add $\frac{3}{4}$ cup of sugar or honey, after the juice comes to a boil. Cook until the syrup will drip from the side of a spoon in two or more rows of drops or until it will sheet, pour into sterilized glasses, and seal with boiling hot paraffin when cold. Better results are obtained if not more than one quart of juice is boiled down at a time. A second and sometimes even a third extraction of juice may be made by turning the fruit remaining in the bag back into a kettle, adding a little water and boiling up again, but the first extraction will make the finest jelly.

RED RASPBERRY AND RHUBARB MARMALADE.

Red raspberries	Rhubarb cut small
	Sugar or honey

Almost any proportion of berries and rhubarb may be used; half and half gives very good results. Put one quart of the mixed fruit over the fire with a little water to prevent burning and cook about 20 minutes, add three cups of sugar or honey and sugar and cook until a little of the syrup will drip from the side of a spoon in two or more rows of drops, pour into sterilized glasses and seal when cold with boiling hot paraffin, or it may be sealed while boiling hot in fruit jars.

RHUBARB CONSERVE.

1 qt. rhubarb cut small	1 sliced orange
1 qt. white currants	1 lb. raisins
1 qt. red currants	1 cup nut meats
	4 lbs. sugar or honey

Simmer the fruit about half an hour or until the syrup is jelly-like, add the nuts, boil up and turn into sterilized jelly glasses and seal in the usual way.

Mrs. Clara F. Horner, Cleveland.

ROCKS.

$\frac{3}{4}$ cup honey	1 lb. pecan nuts, broken small
$\frac{3}{4}$ cup butter substitute	1 lb. dates, stoned and cut small
3 eggs beaten separately	$\frac{1}{2}$ teaspoon salt
3 cups sifted flour	Flavor
1 teaspoon soda	

Warm the butter substitute and blend with the honey, add the egg yolks and then the well-beaten whites a little at a time, alternating with the flour in which the soda and salt have been sifted. Use enough flour to make a rather stiff drop batter. Add the fruit and nuts and flavor, if desired, altho the flavor of the honey and fruit and nuts alone is very good. Drop from a teaspoon

(Continued on page 471.)

"ANYONE who has any kind of passion for observation must have discovered long ago that a side-line has ever so much more charm and appeal about it than a main-line." I found that in a serial novel by Hugh Walpole, running in the Bookman. To be sure, since one must be honest, Mr. Walpole was writing about railroads; and his side-line comments rambled delightfully from fishy-smelling little stations to farmers with brown leggings and pipes and knotted walking sticks, from sandwiches and seedcakes and jam-puffs eaten on this interesting little side-line train to Jeremy, in the title role, falling asleep against his father's leg. But oh, he was so right about the charm and appeal of the side line, whether of the railroad one rides or the work one does. There are exceptions, of course, to this statement—else it would be itself a most exceptional statement. But for the most of the people of this earth, how true.

One of the joys of the side liner is the kindly tolerance the rest of the world grants to his enthusiasms. Tho, for that matter, isn't the world generally pretty tolerant of any genuine enthusiasm? And isn't enthusiasm one of the virtues—yes, virtues—most worth possessing? Perhaps that depends on what one is enthusiastic about. But take the beekeeping side liner. Think of his joy in being allowed to parade his enthusiasms openly before his more matter-of-fact friends—all the delights and adventures and astounding experiences of his loved avocation. Yes, and with more grace than would be granted those same friends, he makes moan—oh much moan and most wailingly—when some unexpected misfortune crosses his apicultural path.

There was our "ground swarm." It was our first, and we have told about it to everyone who would listen, and that was everyone to whom we told it. Our friends are most polite, and they recall that we are side liners. As I entered the yard one morning, knowing I would have a little less time there than was needed, and so being compelled to be almost strictly business, I noticed bees flying around the little quince tree just beyond the bee yard. Hurrying I went to investigate, and parting the wild growth, I found a tiny outdoor colony, tangled in with the stems of grasses and weeds. They had built one bit of comb, that could lie in the palm of my hand, attaching it to a stout but drooping stem. How I wanted to play with them, to find their queen, to coax them, small and unimportant tho they were, into a shallow super and watch them grow thru the summer to the dignity of a full-sized colony. But there was real work to do first, with all too

Beekkeeping as a Side Line

Grace Allen

short a time to do it in; so I left them there with my best wishes.

Little good the wishes did them, however. When we looked them up in the

cold wet grass after several days of rain, they had given up. The pitiful little piece of comb was still there, but the valiant little workers lay in a heap at the roots of things, dead.

That was the day we found, thru a friend's observant eyes, bees going in and out under a hivestand. Mr. Allen lifted off the hive and in excited expectancy I slowly tipped up the bottom-board. There they were, snug and ambitious and prosperous. Can you see them? Down from the bottom-board, in the quiet spot inclosed by the rim of the hivestand, they had hung the fittings of their home. In the comb were both brood and honey. Then we meddling, tho friendly, giants of an alien race came changing things to suit ourselves. Upside down we turned their home. Probably they did not like that, for it wasn't built to stand that way. Then on the hivestand, thus upside down, we set a shallow super of foundation, and when we looked a few days later, there was nice new comb with eggs in it. Before the bees know what has happened, these same giants will have outwitted them, and they will have come submissively out of their stolen home, with its "natural" comb, into a modern hive with movable frames, scarcely knowing how the change was brought about.

Then there was the gay and stubborn swarm that hung, according to the house-girl, half a day and all night and half another day, hidden in an old peach tree here at home. We had been gone one Saturday, and just as we were buttering our potatoes Sunday noon, the housegirl came in to announce, "They's some bees in a tree jes where they wuz all yestuddy evenin'." Then as we were ready for berries she came back to add, "Them bees is flyin round agin." So we left the berries for supper, and went forth for to see. Across the back lot they sailed, apparently ticketed straight for a house on the next street where a small boy was swinging his baby brother in the porch swing. Presently there came screams and sounds of excited running, as the bees threatened to take possession of the place. Dismayed, perhaps, by the excitement, they doubled on their tracks, clustering again in a small maple by the fence. Who can resist a swarm of bees? Even tho it be a tiny one and its capture involve the Sunday dragging of a ladder across to another street. Into a shallow super they were shaken, and who shall say to what they may have grown when another spring count rolls round?

Then there was the polite society swarm.

One May afternoon I stood by the gate waiting for a street car, all silk-dressed and white-hatted and ready for club, when I decided there was time to go back and get a rose. And there, scarcely waist high, on a young peach tree near the roses, hung one of the prettiest swarms I ever saw. Into a shallow super it too went, there being nothing else handy, and I was able to return the courtesy of their low clustering by merely bending a trifle more the bough where they hung, until it lay on the frames, giving it then a gentle jar. And immediately bodies pointed up at a joyful angle, wings started waving, and I left them taking rapturous possession of their new home, while I, with my rose, went on to the club. Not worth mentioning, you see, or even remembering, if one were a professional, but a happy incident to be told with glee, when one is a side liner.

And now, in an utter tumult of overwhelming moods, I claim my side liner's right to make my moan and my long tragic wail. Yes; undoubtedly you have guessed it. What else could it be? American, at that.

The sad details are in no way peculiar. I merely went into the yard one otherwise happy May morning, and when I drew out the first comb, the skies fell around me and the world grew dark. Dry and empty this outside comb was, except that here, there, and elsewhere were perhaps a dozen scattered, sealed, sunken cells, with the telltale ragged perforations. I sniffed. No noticeable odor. I broke a twig from the young cherry tree overhead, and with the world holding its breath, inserted it. Something coffee-colored and ropy came out. Mechanically, like a frozen thing, I drew out a comb from the center, looking for evidence of a mated queen. "Eggs," I coldly informed the indifferent universe, and closed the hive. Walking back to the house I thought of Mr. Holtermann; and Job; and Mr. Buchanan who might—**might**—tho I well knew he wouldn't—call it all a mistake; and Mr. Allen, the comforting depths of whose chivalrous courtesy closes over all my woes.

Mr. Buchanan did all that any inspector could do, came promptly and said the worst. But for all that, the light broke. It always does, you know, even when you get foul brood. We blessed the happy inspiration that had decided us last summer to move our bees away, all but these five hives, now nine, that we kept just for the joy of their presence. Even the humor came in, as it usually does with us here. One evening while I was muttering incantations over a boiler of bubbling lye water, wherein some frames were being coaxed to perfect cleanliness, suddenly across the evening came the sound of a fire engine, rushing out into the night with its ladders and its helmeted men and hose. Down the side street it rushed, swung around the corner, drew to a clanging stop at our rear. Lights flashed in darkened houses, people ran into the street. And the

surprised and peeved firemen found only Mr. Allen, equally surprised and almost equally peeved, where he loomed tall and symbolic over a foulbroody fire in a yawning pit in the backyard!

Honey prospects? Who can say? It rained twenty-three days in May; not usually showers, either, but long steady persistent rains, that acted as tho they had studied "Power of Will," and were demonstrating how they could stick to a set purpose, undeterred by what anybody said. Often it cleared in the evening, the nights being



There they were snug and prosperous on the under side of the hivestand.

beautiful with great stars that seemed to promise equally beautiful days. But always dawn was lost in clouds, and morning came clothed in gray garments, wet and dripping; and behold, today was like unto yesterday and the days that passed before. Bees were kept in their hives and beekeepers grew increasingly discouraged.

Yet after all, there is something more than honey crops in this world to reckon rainy days by. There is something in the souls of men and women that answers to the soft mood of a long quiet gray day. Let us never allow crop prospects to crowd the sensitive response out of our souls. Better gather beauty and the high gifts of the spirit, as we go, than all the honey in all the flowers, and all the money in all the world.

There was one especial day in May. I was alone with the rain, sitting on a high stool under a rather ramshackle roof sloping east from the accommodating shed we have the use of, out there in the country where our bees are. My hands were putting in foundation, but the heart and soul of me were being touched with quietness and all the gentle sounds and tenderness of a rainy day. And verily, thru the years to come, the gifts of that day shall be of more value than many pounds of honey.

RAIN.

I am alone with the rain and the young green earth and her fragrance,
Alone with the mist-blurred notes that float from a distant thrush.

My soul, so often a flame, today is a cup of wonder.
Held to the miracle rain—rain—rain—and the hush.



FROM NORTH, EAST, WEST AND SOUTH



In Northern California.—The spring of 1919, on the whole, was quite unfavorable. The inclement weather during this period curtailed the flow from the fruit blooms of mustard and sage, caused an unusual consumption of old stores, and brought about a greater prevalence of brood diseases. The first few days of June, however, were warm and as early as June 5 the bees were bringing in considerable nectar from alfalfa, so that it may be said that the main summer flow has started. The flow from spring plants was cut short, this being especially true regarding the orange. An average production of about 30 pounds per colony was gathered from this source.

Thru the efforts of A. J. Gilkison, Tuolumne County Farm Advisor, I paid a visit to the distressed beekeepers living in the vicinity of Sonora. F. W. Burch accompanied me. We found it was the same old trouble—black bees. European had set in and every now and then a case of American foul brood to complicate matters. We did what we could to help, and while I was explaining “methods of treatment,” Mr. Burch was “signing ‘em up” into the Exchange. Tuolumne County has many good ranges. Early in the season the bees work well on filaree and chaparral, and during May there is frequently an extraction from locust. Then follows cascara sagrada or coffee berry, as it is more commonly known, which is the main source of nectar. This shrub produces a wonderful honey. It is not light in color, but is of very heavy body and of most delicious flavor. Other important plants are yerba santa or wild peach, poison oak, tarweed, and blue curls. The mountains rise abruptly in Tuolumne County, and the migratory beekeeper takes advantage of this fact by moving to higher altitudes after the snow melts.

A few words regarding the manipulation of bees during hot weather may be worth while at the present time. Yesterday was a good bee-day, the thermometer registered 99 degrees in the shade, and as there was little or no wind, nectar came in fast. The handling of bees under these conditions in an open field requires certain precautionary methods. Upon removing a hive lid from a colony it should not be placed in such a position that the direct rays of the sun fall upon the inner part of the lid. This is especially so, if there be any burr-comb upon the cover. It is also inadvisable to give a colony a lid, bottom, or excluder that has been exposed to the sun. When a super is removed from a colony, whether or not there are robbers about, it should be covered even if removed for but a short time. Shaking or brushing bees on to the ground or on dry grass at the hive entrance is sure death to them, unless the portion of the ground upon which the bees fall is shaded. Owing to

the incoming nectar it is far better to use a brush well wetted than to shake bees from a comb. The thin honey daubs them, soon filling their breathing pores and putting more or less of them out of commission. After a colony has been manipulated it is wise to provide it with a shade-board and give it ventilation, provided the beekeeper is not working at an outyard which may not be visited for a week or longer. On a hot day a strong colony can maintain the proper temperature within; but when once manipulated it is quite impossible for it to restore the normal temperature, and for this reason it is good policy to provide shade.

M. C. Richter.

Modesto, Calif.

* * *

In Southern California.—The weather conditions up to June 1 were about the same as during April. High fogs continued practically every day until June 1, when it turned hot with a drying wind and the flow from the little orange still in bloom was stopped. Some beekeepers became discouraged and moved their bees from the oranges to the sages, thinking thereby to improve conditions. But they found the same weather conditions on the sage ranges. The rainfall being below normal, the ground in the groves was rather dry. The cool weather caused the bloom to remain on the trees much longer than it would have otherwise. Taking it all in all, I am of the opinion that as much orange honey was produced as there would have been, had we had hot dry weather. Nearer the coast it seemed to be a few degrees cooler, and the yield was not so good.

I was over a large part of the sage and wild-buckwheat ranges of Riverside County a few days ago and found that the black sage has furnished no surplus honey. The white sage is in bloom but does not show any promise of a great amount of honey. The wild buckwheat is just getting into bloom and may yield some honey, but at best the crop is sure to be very short.

Most beekeepers have already moved their bees from the oranges to their summer ranges. Many do their own hauling, while others depend upon the city truckmen to do the work. One beekeeper says the truckman puts on 80 two-story hives and hauls them for a stated price. Others charge so much per hour. One thing is important—the sooner one can get his bees to a new location after the flow stops, the better.

Carload after carload of California nucleis is going to Utah and Idaho. Most people have very little conception of the extent to which this “increase” business has grown. For instance, one man leased two locations near the orange groves and placed 350 colonies on them. These he increased to over 1,200, and by the first of June had them



FROM NORTH, EAST, WEST AND SOUTH



on his locations in Idaho ready for the gathering of a honey crop. Of course, in running for so much increase, one must lose sight of the honey production to a great extent. However, this man produced some orange honey.

Shipments arriving at their destination at least by June 15 are likely to give much better results than those arriving later. Various reports as to the condition of these nuclei on their arrival have been heard. From my experience, I would say that most of the grief comes from one or more of the following causes: Trying to ship old bees, too much honey in the combs, improper ventilation, shipping too large colonies, and lack of water while crossing the desert. Experience is a good but often expensive teacher. It might be better to employ some one who has been thru the game to assist you in your first trial of shipping bees.

Considerable demand for bees by the pound comes from Nevada, which has a law prohibiting the bringing of bees on combs into the State.

Prices for honey have not been established yet, so far as I can learn. Some sales have been reported at 20 cents for orange honey. There seems to be no reason for the prices being lower than last year. Apricot and peach growers are offered prices never before known. Why should honey prices go down, while all other food products seem to be advancing?

L. L. Andrews.

Corona, Calif.

In Michigan.—Michigan needs more queen-breeders. This territory will not attract any of the extensive queen-breeders of the South, for we have a very short season as compared with the South. However, many of our own beekeepers are in position to take up queen-breeding along with honey production. There is a great demand for queens in every county, and no one need fear that the queens would not find a ready market at good prices if reared in a yard of good Italian stock. A few years ago some one advertised "black Italians." We do not need any more of that kind. We have too many now.

The prospects for honey at this date (June 8) seem to be better than the average, altho the fall drought killed the clover in spots all over the Lower Peninsula. In the region of light soils the crop may be very short. On the heavy soils the prospects are excellent. Everywhere one hears the expression that "this is basswood year." The number of colonies of bees in the State has increased very largely since a year ago. Also, thousands of colonies in box hives have been transferred into modern equipment, and a large part of them are now in the hands of beekeepers who make a business of

producing honey. This fact will contribute somewhat to the Michigan honey crop this year. Incidentally, the number of beekeepers has been reduced, but the number of honey-producers is increasing.

The summer meeting of the State Beekeepers' Association will be held at Boyne City on July 22 and 23. Boyne City is an admirable place for the holding of the summer meeting, as it is not only in the heart of the summer-resort section of northern Michigan but it also lies within the territory of some of the most extensive beekeepers in the State. The date was chosen so that the beekeepers from farther south might be able to view the crop on the hives and so that it might come at a time when the beekeepers of the north would be able to leave their bees for a time. Boyne City is located on Pine Lake in Charlevoix County. It is a city of about 6,000 people and is amply equipped for accommodating all that may attend the Convention. It is within reach of the apiaries of Ira D. Bartlett, Hubbard Bros., J. D. Robinson, Peter Sowinski, L. C. Gordon, E. E. Coveyou, George Jaquays, and a host of other successful beekeepers of the north. It is expected that the Convention will be invited to view the apiaries of several of these men. Some of the speakers will be E. R. Root of Gleanings, Kenneth Hawkins of the G. B. Lewis Co., Dr. E. F. Phillips, Chas. Yost, Inspector of Indiana, and a number of Michigan men. This is our first effort in the way of a summer convention. The attendance will determine whether or not another one will be held. After the convention, there will be a beekeepers' excursion to the Upper Peninsula for the benefit of those who wish to see at first hand the opportunities that are there for the commercial honey-producer. This will be an ideal time to view the possibilities of the region, as the raspberry crop will be gathered by that time and the clover flow will be at its best. The excursionists will visit several quite extensive producers in the Upper Peninsula.

I feel honored to be corrected by Dr. C. C. Miller in regard to some remarks referring to the rearing of queens and drones, in the May issue. I gladly yield the points he "calls" me on, but wish to emphasize here what I did not mention then as being the cause for those remarks. We need here in Michigan not less than 100,000 high-grade Italian queens. We need such a preponderance of Italian drones in our yards that the bees of the woods and the black bees of our neighbors may soon become Italianized. The need is not so much the rearing of queens and drones from the best of a yard full of Italians but the rearing of the queens and drones from the one or two good Italian queens that are in the yard. The average apiary does not contain over one good Ital-



FROM NORTH, EAST, WEST AND SOUTH



ian queen. Probably, the greatest need at present is Italianizing.

East Lansing, Mich.

B. F. Kindig.

* * *

In Ontario.—Following a long continued spell of cool wet weather, a wave of extreme heat struck Ontario on May 26, lasting until June 5 when a fine rain came. Heat and moisture are wonder-workers when combined, and the hot weather coming when the ground was full of water has forced on a wonderful growth of clover. As we had practically no days fit for bee work previous to the 26th of May, needless to say everything was in a rush for the four days that fruit bloom was out, and even then not over two-thirds of our colonies were overhauled and queens clipped before the bloom was gone and a dearth of nectar made colony-examination on an extensive scale impossible. While we can do nothing with the bees at home here, at the locations up north bees are getting enough from thorn apple to keep them busy and hives can be opened right along with no robbers bothering.

The Canadian dailies of a few days ago contained a notice sent out by the Canadian Trade Commission located in Great Britain, that the demand for honey will be large from that country this year owing to much loss among the bees from various reasons during the last four years. While the report may be accurate in some ways, private information has seemed to point to the fact that the honey market over seas is in a somewhat unsettled condition, and that the extreme prices of a year ago are not apt to be duplicated this season. However, I suspect that the advice of the commission to produce all the honey possible, with the assurance that a good price will be obtained, is absolutely sound; for, with other articles of food soaring higher all the time, it is hardly probable that honey will sell at a figure low enough to come under the head of being cheap.

Among the honey sources of Ontario that I have never seen mentioned if I remember correctly, is the large oak of the forests. While for years we have noticed the bees working on the oak bloom early and late while it lasted, yet the few trees in our home section did not give one a fair idea as to whether they yielded honey as well as pollen. But at the north apiaries there are large numbers of oak, and this year the weather was perfect while they were in bloom. Our bees practically deserted all other nectar and in four days strong colonies nearly filled full-depth 8-frame L. supers with honey. Can any one living in a locality where oaks are plentiful tell us whether this is a common occurrence, or was it something not likely to happen again? I have been in the habit of telling people that only pollen

was obtained from the oak; but, with the evidence to the contrary so pronounced, I will have to revise my ideas on the subject. [This is of interest. We understood Mr. Lovell that oaks bear pollen and in some species honeydew, but not nectar.—Editor.]

We are reminded that the shipping of package bees from the South in hot weather is still an uncertain problem. A large consignment came into one of our Ontario cities during the extreme heat, and in the lot over 60 packages were all dead and others badly damaged. An experience like that is enough to discourage both consignor and consignee. I understand these bees were on the road for seven days, and that shows very bad service on the part of the express companies, as the distance can be covered in ordinary passenger service in less than four days. Whether an express company can be forced to make good in such a case as that is a question; but, in our humble opinion, the moral right to do so is there even if they cannot be legally compelled to pay the damage. Given cool weather and plenty of food, bees usually come in good condition even if on the road seven days; but with the thermometer over 90 during every day of the trip, I believe that will spell disaster nearly every time.

Is foul brood on the increase or decrease here in Ontario? While I was acting as inspector for a number of years and trying to give conscientious service, viewing the localities that I worked in during those years and seeing conditions as they are now, I often wonder if the money I spent was worth while. Certainly European foul brood is increasing, and I have my doubt as to American foul brood being much checked—in other words, I believe it is holding its own all too well. Of course, it will be pointed out to me that certain sections have less than a few years ago; but then I can point to other sections that are much worse than they were a few years ago. I do not feel like doing much criticising; for, when one has nothing constructive to offer, silence is better than destructive criticism. Certainly it is a problem to deal with, and the present demand for bees, with many inexperienced persons starting in beekeeping, is adding to the difficulty all the time. One thing sure, the prospective or present active beekeeper must more than ever realize the necessity of being able to diagnose the two brands of foul brood, and in a measure thus be his own inspector. While he cannot prevent his neighbors from spreading disease, it is a source of satisfaction to be able to know that he himself is not a means of spreading the plague.

The clover and buckwheat prospects have seldom been better and bees are as a rule, in fair condition, except where foul brood is spoiling the chances of a good crop.

Markham, Ont.

J. L. Byer.

HEADS OF GRAIN

FROM

DIFFERENT FIELDS

**How Much
Buckwheat to Sow.**

I have made a number of inquiries, and the consensus of opinion seems to be about one bushel of Japanese or two to three pecks of Silverhull. Broadcast seeding gives best results. A man in western Illinois recommends for rich, well-prepared land one to two pecks per acre of the Silverhull variety, and claims that light seeding on good land gives best results. Another in central Michigan, on a lighter and sandy loam, recommends two to three pecks per acre of Silverhull seed. Rough and poor land requires more seed.

Basco, Ill.

In regard to the proper amount of buckwheat to sow per acre, Wm. Findlay.

sprinkled them a little, and, leaving the cover off the hive, I went into the house and watched them. A little later I saw one bee that looked different from the others, and concluded she was the queen. I got all the books about bees I could find, and read up; and, sure enough, it described her exactly. When my husband came home I met him at the door and said, "The bees swarmed." He replied, "And lost them." I answered, "No. I got them, every one, and got stung only once." So you see I am now a real beekeeper.

Mrs. W. M. Cochrane.

Watts, Calif.

**A Small Breeze
From the North.**

Here it does not seem to make much difference whether a colony

is made queenless or not, regarding the accepting of cells, only that more will be accepted in a queenless colony if a second batch is given five or six days after the first grafting. I prefer to use more colonies, and only those that are strong enough. After the honey flow in late summer, we have a different proposition, and I then find it necessary to use queenless colonies.

Regarding increase, as I am writing for yours, an American publication, I presume it will be permissible for me to use an American style; and since most of our warm air comes from the South, a small breeze from the North would not be noticed. I once bought three colonies of black bees which I Italianized the first season and increased to six. The next season I increased to 18, and they gave me an average of 300 pounds, spring count. The following season I increased to 45, taking an average of 200 pounds per colony, spring count. I feel satisfied that I could take one colony with a good Italian queen and three supers of drawn combs and increase to 500 colonies in five years and make them raise their own queens and pay for everything in connection with them. I hear some one say, "That must be a pretty good location." Well, I don't know. The first start I made in bees I bought five colonies of blacks. That same spring a friend of mine started in with 120 colonies. Comparing notes the third season after, my five had increased to 160, and my friend had eight hives of bees left alive and a lot of empty boxes for sale, and there was no disease of any kind in his apiary.

Regarding the difference in bees, I have known of a 200-colony yard in which 75 colonies of a certain strain produced in a poor season a surplus of 75 pounds, while right alongside of them were colonies as strong, or stronger, that were living from hand to mouth.

One of my colonies has a five-year-old queen. On May 20 she was occupying a 2½-story hive, tho the spring was cold and wet.



The experience of these horses is to have been fed on sweet clover only, and kept fat.—W. C. Gathright, Fillmore, Calif.

**The Woman and
the Swarm.**

since been a devoted beeman, altho we have now but three colonies. Yesterday when he was at work, and I at home alone, I suddenly heard a frightful roar, and looked out to see what had happened. It looked to me as if all the bees were in the air, and I began to get ready for that swarm. I donned my raincoat, a pair of cotton gloves and a veil, and started out for the hive which Mr. Cochrane had made ready. Well, that swarm alighted on the fencepost and top rail of a wire fence where I could not put the hive under them, but I put the hive as close to the fence as I could and stood still and wondered what to do, as I could not shake the fence. Finally I got the smoker and some water, so if they became too familiar I'd be ready, and then I thought of that woman's weapon, the broom. I carefully brushed the bees off the fence and into the hive, or as many as I could get there, for the rest were on the ground and on the side of the hive where I

One year ago my husband bought a colony of bees, and has ever

HEADS OF GRAIN FROM DIFFERENT FIELDS

This colony is packed winter and summer, the packing-case being covered on the sides and ends with black tarred paper which makes it hot in summer. Altho their summer entrance is $4\frac{1}{2}$ inches wide by $\frac{1}{2}$ inch deep, yet they have never swarmed. This colony, when grafted cells are given it, will seal the cells containing larvæ less than 48 hours old. If you have never seen queen-cells sealed over containing larvæ 24 to 48 hours old, and believe that bees always wait till the eighth or ninth day to seal them, I can send you some later that will convince you otherwise.

I take this to be a non-swarmling trait since this colony, tho headed by a five-year-old queen, has never shown any inclination to swarm, nor will they finish to maturity queen-cells grafted in the regular way.

Ontario.

John A. McKinnon.

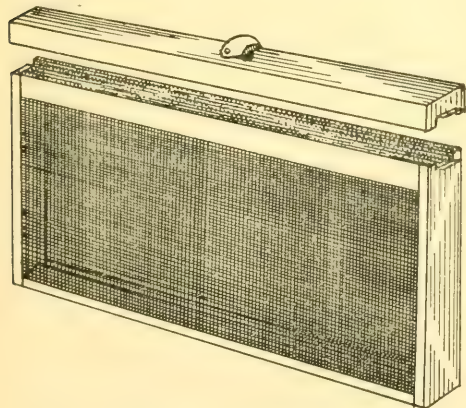
[This is written in reply to comments made on page 319 of the May issue. Mr. McKinnon also calls attention to the fact that we quote him as saying that he puts a super of combs over an excluder, leaving space for a bar of cells. Of course that super contains combs of brood, as is shown later in the same paragraph when we speak of removing two "of these frames of brood."

In regard to capped queen-cells containing larvæ only two or three days old, several were found in one of our colonies about two weeks ago. Such cells never came to our attention before.—Editor.]

Introducing and Uniting Cage.

These cages can be made in one, two, three, or four-frame sizes, etc., for introducing queens and uniting bees. I have succeeded in introducing

These cages can be made in one, two, three, or four-frame



For introducing queens and uniting bees.

queens where there was robbing going on, also when laying workers were present, by using the one-frame size. Just take a frame

with capped brood and some honey. Brush off the bees and hang the frame with the queen in the cage.

The drawings and sample are for Hoffman frames; but the same principle applies to other styles as well. A. E. H. Fabian.

Lake Geneva, Wis.

Beekeeping on a Big Scale.

Few people realize the amount of supplies a large beekeeper requires. It takes from half a ton to a ton of smoker fuel alone for a good season's run, and from one to two dozen Jumbo



A few extractors used by Lusher.

smokers. No, we do not try to destroy smokers, but they just wear out from service. I buy what the junk men call tree-wraps for fuel. Foundation in half-ton lots does not last long when you have thousands of new Hoffman frames to fill every season. Wire in two and three dozen one-pound spools, and nails by the keg, also 60-pound honey-cans by the thousand, are a few of the expenses besides six good men. Gasoline and cylinder oil by the drum are also large items with the beekeeper since autos have become so reliable an assistant. But if one can get honey by the carload, expenses do not hurt a good beekeeper. The picture shows a few extractors used, also a small pile of honey ready for shipment.

California.

A. E. Lusher.

Brown Bees to be Replaced by Italians.

The ravages of the Isle of Wight disease in this country have thrown a different complexion on beekeeping, because it has been found that Italian bees have a greater resisting power. Therefore the breed with which we are now restocking the country is more prolific.

Our brown bee was a great favorite, partly because of the beautiful cappings on sections and partly because its habits fitted our hives and methods of management which had developed from our experience with this particular bee.

It is probable that in a very few years

HEADS OF GRAIN FROM DIFFERENT FIELDS

there will be no pure brown bees left, and therefore it is necessary to look ahead and gradually change our methods until our equipment, etc., are suited to the requirements of a queen whose egg-laying renders necessary a brood-box of 50 per cent greater capacity than ten of our standard frames.

St. Cross, England.

C. P. Jarman.

Carbolized Cloth for Driving Bees.

I read lately in a back number of Gleanings that you had not tried using carbolie acid in handling bees. Try the following solution: 1 ounce carbolie acid, 1 ounce glycerine, 6 ounces water. Shake before using. Make two cotton cloths of a size to cover the top of the hives. Tack one edge to a half-inch roller, one inch shorter than the top-bar of the frames. This makes a small blind in appearance. Do not hem any of the edges of cloth. To use, sprinkle the cloths with the above solution. Use a feather in the cork of the bottle. In taking off the covers, roll the carbolie cloth on as fast as the bees are exposed to the light. Dry your hands with the cloths, and the bees will not sting the hands.

William Hogg.

Castle-Douglas, Scotland.

Jay Smith Thinks Joke Is on E. R.—We Wonder.

Now Mr. M.-A.-O., I think E. R. needs a little more showing up. While he and I were in Riverside, Calif., he led me an awful chase. When we got off the electric car, E. R. wanted to know at what hotel I intended to stop. I told him I did not know; so he said, "We will go to the hotel where I stopped when I was here last. It was the Stewart Hotel. I do not know just where it is, but I will know it all right once I get my eye on it."

It was a terrifically hot day. I had on my overcoat and was carrying two heavy hand-bags. Moreover, it was nearly time for our meeting; but E. R. said it was not far, and it would not take long to find that hotel if I could keep up with him. So he led out at a lively pace, and I followed the best I could. My, how I did sweat!

He said, "This looks like it just ahead," and we went a couple of blocks, but that building proved to be a church. Then he said, "No, I think it was down here a block or two. That building looks considerably like it." So we went down there. This building proved to be the creamery.

"Well," said E. R., "This must be it over here," so after four blocks more we came to the fire department. "Well, well," said E. R. "Then it must be over here to the left," and after six blocks more we

came back to the electric station from where we started.

But E. R. is too good a man to be downed, so he inquired of a man standing nearby, "Say, where is the Stewart Hotel anyhow?"

The fellow looked us over carefully as



E. R. Root looking for the Stewart Hotel.

though he was suspicious of our characters or our mentalities or something and then replied, "Say, what have you fellows been having to drink? The Stewart Hotel is not in Riverside! It is in San Bernardino!"

Vincennes, Ind.

Jay Smith.

Another Soldier and Nail Keg.

After reading in Gleanings about the horseshoer soldier boy with his two colonies of bees in nail kegs, I thought I should like to tell my own experience with bees. I am not a soldier now, but was during the Civil war, and am now a retired blacksmith. In 1916 I found a swarm of bees hanging on a bush by my garden. At first I put them into a nail keg, but later transferred them to a Langstroth hive. The spring of 1918 found us with three good strong colonies. During the season they threw off eight swarms, which we saved all but one. Besides saving over 100 sections of honey for our own use we sold \$65.00 worth. We are very proud of our bees. They were in fine condition when packed for the winter, and on Dec. 19 last gathered pollen from dandelion blossoms.

London, O.

T. W. Preston.

S. A. Ratliff, President of the Aluminum Honey-comb Co., has just sent us a copy of a letter that he sent J. E. Crane, after reading the latter's comment on aluminum combs, page 302, of the May number. Mr. Ratliff thinks that Mr. Crane should not pass judgment concerning the company except after an examination of its affairs. He says he would also like to see Mr. Crane's expression after he had made some test of the comb itself.

In regard to the sale of stock, Mr. Ratliff says: "I have no idea who the stockholder is who wrote you a letter. His statement is true that we had orders for more than 40,000 combs. A number of wealthy men in Los Angeles have made propositions concerning the purchase of a controlling interest in the concern. Mr. Root has never made the writer a proposition to buy an interest in the Company, and likewise the writer has never mentioned any such proposition to Mr. Root. We have never sold a beekeeper stock unless we also took his order for combs at the same time, and these combs we are glad to say are being delivered to their entire satisfaction. The writer is personally acquainted with Mr. E. R. Root and I do not believe he would say that it is the intention of the Company to sell stock rather than combs."

"During the past year I have found the use of steam heat in the extracting-house a great success. I use it for melting the cappings and for heating the honey and keeping it just right so the honey-pump can handle it. The steam is led into the capping-melter, the uncapping-tank also, under the extractor, and under the pan that heats the honey for straining, and under the tank that delivers the honey to the pump. All of these five places need no special attention. I simply have to keep up the steam outside under the boiler, and that is easy."—Daniel Danielsen, Morgan County, Colo.

"To patch a torn queen-cell, warm a piece of foundation and lay it over the hole. Daub with hot wax along the edges; then dip in wax that has just started to cool and has formed a film on top to about $\frac{3}{8}$ inch from the point. If short of protectors, dip all cells as above and fasten a nail at the top of each cell and insert in the comb."—J. E. Thompson, Medina County, O.

"In the editorial in the May number, on the increase of foul brood, the editor speaks of a 'beeman' who used his hive-tool to dig out diseased brood, and went on to the next hive and dug into healthy brood without cleaning his hive-tool. That reminded me of what our county bee inspector did in my yard. In eighteen colonies inspected he found six with European foul brood, and

BEES, MEN AND THINGS

(You may find it here)

he never cleaned his hive-tool once during the operation. It is bad enough for a beeman to make such blunders; but when an inspector does it, what should

the bee owner do to him?"—F. W.

"I avoid mixing frames and supers at extracting time by having a piece of colored chalk handy and drawing a line across the frames and edges of the super close to one end before uncapping. With the next super, I draw the line quarter way, with the third super in the middle, then begin over. If one needs more than three kinds to avoid confusion, every second set can be marked out with double lines."—Harrison H. Brown, San Juan County, N. M.

"I left eight of my colonies in a beehouse last winter; but a small tree fell on it and knocked a few shacks off the roof; and this spring, while I spent sixteen days in the hospital, an old bear went thru the roof and cleaned up the eight hives. He broke the frames in pieces and killed all the bees."—Sherman Craig, Skagit County, Wash.

"Dear Mrs. Grace Allen: Did some one ask you of the word 'bee-er' and 'beerette'? In Japanese language the both of the man and the woman who works with bees is called as 'yo-ho-ka,' equally. Woman and man is the same human being. Then they must be called the same, or equally, 'bee-er' or 'yo-ho-ka.' Is it not so?"—Yasuo Hiratsuka, Japan.

"Every man with whom I come in contact enjoys the M. A. O. department. When I was in Washington, Phillips, Demuth, and I had several good laughs over the M. A. O. articles in the back files of Gleanings, especially Pritchard's 'Odorless method of handling skunks.'"—Jay Smith.

"We have seven out-apiaries, and the younger generation of Dadants, the third in beekeeping on a large scale, assert that a man, with a little occasional help, can take care of a thousand colonies and make it pay."—C. P. Dadant, Editor American Bee Journal, Hamilton, Ill.

"My bees began to swarm on Easter Sunday; and as I had no hive I kept them three days and three nights without a hive. I put earth on the ground and then got the bees on the earth, drove four two-foot stakes around them, and spread a sheet over them."—J. H. Canady, Morgan County, Ind.

"Since the fire, honey prospects for the future look great up here."—J. Krminski, Saint Louis County, Minn.

"Our wet spring this year was like that of 1916. We hope it will continue the similarity thruout the season, for it was our best ever."—Morley Pettit, Ontario.

THE New York State Association of Beekeepers' Societies hold a field meeting August 1 at the apiary of Deroy Taylor, Newark, N. Y. They plan to make this the largest one yet held in their State.



ported to possess a model apiary, and many will doubtless take this opportunity of visiting it. Lunch will be on the basket plan. The program for the day will be

in charge of Prof. Lloyd R. Watson, Apiculturist at the Connecticut Agricultural College.

Professor F. Eric Millen of the Department of Apiculture, Iowa State College, has accepted the position of Professor of Beekeeping and Provincial Apiarist at the Ontario Agricultural College, Guelph, Ontario, Canada. To show the loss to Iowa and the consequent gain to Ontario, we quote a little tribute from a letter we recently received. The letter is not supposed to concern Prof. Millen, but rather the Iowa foul-brood law. It is as follows:

"So far, I am much impressed with the result which Mr. Millen is able to secure in Iowa. However, I think Mr. Millen is a type of man that would get good results with almost any kind of law, and as much credit, perhaps, is due to Mr. Millen's personality as to the kind of law under which he is working."

We all extend our best wishes to Prof. Millen in his new work.

Connecticut has a bill before the House, the purpose of which is to secure for the benefit of the state inspectors a list of beekeepers, together with the number and location of their colonies. Each person owning one or more hives of bees is required to register annually before the 1st of October. The recording fee is 25 cents. The fine for non-registration is not more than five dollars.

The beekeepers of St. Louis have recently formed the Mound City Bee Club, which purposes among other things to discourage nail-keg beekeeping, to co-operate with inspectors, to stimulate honey consumption, to calculate production costs, "and last, but not least, to enable the enthusiasts to meet and get it out of their systems and be thereby no longer a bore to their long-suffering friends who don't care a rap about bees."

On May 8 at the State School Building at Delhi, N. Y., was held the first meeting of the Delaware County Beekeepers' Co-operative Association. This was the first county organization of honey-producers that organized in New York State under Article 13A of the Corporation Law.

An important field meeting of the Connecticut Beekeepers' Association will be held on June 28 at the apiary of George W. Schofield of Berlin, Conn. Mr. Schofield is re-

At a recent convention of the Fairfield County, Connecticut, Beekeepers' Association, President Root gave a good address on the food value of honey. Delegates were chosen to the convention to be held at the State College of Agriculture at Storrs, during the month of August.

The Ohio State Beekeepers' Association hold their annual field meet at Delphos, Aug. 7. The meeting will continue during the day and evening and will be held at the apiaries of Fred Leininger and Sons and J. H. Allimier. A good program is planned and a large crowd expected.

The Provincial Department of Agriculture at Victoria, B. C., states that the honey production in the province of British Columbia for 1918 approximated 225 tons. It is stated that this production is essentially a side line, and that the professional apiarist is practically non-existent in the furthest west Canadian province; but the prospect for bigger things in beekeeping there is in sight.

Two short courses in the elements of apiculture will be given in Los Gatos, Calif., June 17-July 3, July 7-July 18, by Prof. Will C. Steinbrunn, at the Montezuma Mountain School. Special care will be given to the manual part of the course (hive-building and other shop work), and queen-rearing will also be demonstrated. Six apiaries will be at the disposition of the class. (See page 429 and also the cover.)

The Imperial Valley Honey Producers' Association has purchased a warehouse at El Centro and will ship the honey of members of the organization. Imperial County now has about 18,000 colonies of bees. At this season little honey is being taken from the colonies, but they will average 80 pounds each during the year, making the annual production about 1,440,000 pounds.

John H. Rosser of Queensland, Australia, of the Australian Expeditionary Forces in France, visited us recently. He is a young enthusiastic beekeeper now touring the United States on a motoreycle, visiting

many of the commercial beekeepers between New York and San Francisco. From San Francisco he will sail for Australia in the fore part of August in order to be present at the beginning of the honey season there, where he will take up his pre-war work as a beekeeper.

* * *

Charles B. Justice, Secretary-Treasurer of the National Beekeepers' Association, gives the policy and aims of the Association as follows:

"The new object of the National Beekeepers' Association is that it may become an affiliation to all State, county, or district co-operative marketing honey exchanges and associations thruout the United States, and that the affiliation shall have only regulatory powers. In other words, each district or State exchange or association will handle its own business as a complete entity within itself, and it should be incorporated on a firm contract holding its members together and developing the standards of quality, grading, and manner of packing and selling its products; and its membership in the National Beekeepers' Association should be by delegate properly accredited with the power and authority of the exchange or association sending such delegate, with the idea that the combined strength of all the State or district exchanges supporting the membership of the National would be sufficient to bring success to its efforts and determination."

At the 49th annual convention of the National Beekeepers' Association held in Chicago on Feb. 19, a resolution was adopted that the secretary of the Association be directed to invite representatives of all organizations of beekeepers, teachers of beekeeping, and members of the allied trades, to meet at Kansas City, Mo., in January, 1920, for the purpose of formulating and adopting a plan and constitution for the National Association.

Mr. Justice says it is hoped that the National may render valuable service to beekeepers in a national way, may increase the consumption of honey, secure national and State recognition and assistance thru education, appropriation for extension work, and wise laws protecting the purity of honey, and safeguarding the beekeeper in his work of production.

Mr. Justice believes that each district where honey is produced should be organized into strong marketing associations or exchanges. Tho the members of an association may themselves sell most of their honey, locally if preferred, they will always be able to dispose of any possible surplus by means of the exchange. He says all legitimate dealers and handlers of honey everywhere will welcome co-operation among the producers, since they know this will result in better grading and better containers, and will keep chunk honey off the market.

To all officials of exchanges representing 1,000 or more colonies, Mr. Justice will be

glad to render any possible service in explaining the benefits of organization. His address is 318 L. A. Investment Building, Los Angeles, Cal.

* * *

On May 26, a representative of Gleanings in Bee Culture attended the hearing of the Consolidated Classification Committee Docket No. 1 in the interests of producers and shippers in general.

We give the matter of classification of honey, comb and strained, as per committee's subject No. 36.

In view of the fact that the hearing was had at the time the proposed consolidated classification was issued on various commodities, among which was honey, the Consolidated Classification Committee refused to hear arguments other than those which pertained to changes proposed in docket No. 1 as applicable in southern classification territory, because the original advances, as proposed by the consolidated classification No. 1 which embodies the question of honey in tins L.C.L. western territory, are now before the Inter-state Commerce Commission, and that body has not as yet rendered decision.

With reference to the proposal to increase rates on honey in bulk in barrels L. C. L. in Southern territory from fourth to third class, we presented arguments vigorously protesting this advance and were advised by the Consolidated Committee that our testimony would be given due consideration before they permitted the increase to become effective. We feel that their decision will be favorable.

There was considerable discussion on the question of proper containers for shipping honey in bulk. The fact was brought out that handlers of honey in the South have been using gum and cypress barrels some of which were of poor quality. The result has been that a good many claims have resulted from this method of packing, which brought about the proposed change in classification as per docket No. 1.

It was felt that if these barrels were used and a limit placed on the size; also, specifications provided as to the construction, such as width of staves, and number of hoops, lining with paraffin, the loss and damage feature could to a great extent be overcome.

Evidence presented seemed to indicate that hardwood barrels, with not less than six to eight hoops according to the size of the barrel, afforded sufficient protection to permit the transportation of honey (with reasonable handling by transportation lines) without loss sufficient to warrant the proposed raise in rates.

The Inter-state Commerce Commission's Decision bearing on the subject of honey in tins L. C. L. Western Classification in ICC Docket No. 10204 when rendered will appear in the columns of this paper.

* * *

A quarterly bee journal, "The California Honey Bowl," has just been launched at Riverside, Calif. The editor is E. J. Atchley.

THE "large hive" is given unusual prominence in the April Apicultural Journal, three articles and an editorial appearing on the subject. Both

the American Bee Journal and Gleanings are quoted at some length, and H. M. Holloway, speaking of his own experience, says: "For a good locality that will carry, say, 150 or 200 colonies or more in a good season, give me a twelve- or thirteen-frame hive, and, of course, the best queens I can get to fill them with busy workers." In an editorial we find the following:

"In America, that land of rapid apicultural progress, the eight-frame was originally almost universally used, but recently the ten-frame has become more popular, and now there is a decided tendency among many prominent honey-producers to advance to the thirteen-frame square hive. This is just in line with our experience here. Between twenty and thirty years ago we tried the eight-frame extensively, but dropped it entirely in favor of the ten-frame, then we went further and tried the twelve-frame hive, which we liked very much."

* * *

LIFE OF EUGENE SECOR.

The writer is one of the many who feel how much gentleness of soul, how much fraternal affection and sincere friendship, how much goodness and poetry, have gone out of the world. Eugene Secor is dead.

* * *

His ability called him to leadership in many lines in which his activities were put forth. Thoroughness was characteristic of all that he did; and the spirit of advancement and progress guided him in every stage of his career, bringing him at last to a place where he stood as a recognized authority upon many questions that had to do with the material resources of the State. * * *

For the past forty years he was widely known as a bee culturist, winning a world-wide reputation in this connection. Such is his standing in this line that in 1893 he was appointed the sole expert apiarian for the World's Columbian Exposition at Chicago—a fact indicative of his wide study and knowledge of the subject. He was a member of the North American Beekeepers' Association, of which he was at one time president, while for seven years he was its general manager and treasurer. He was a regular contributor to various agricultural and technical journals on subjects relating to bees and other phases of country life, and his opinions have become accepted as authority.

He possessed considerable literary taste and talent and was widely known by his writings in the daily press and in his works issued in printed form. The writer knows

THE BEST FROM OTHERS

Iona Fowls

not a line which, dying, he would have wished to blot.

This world and this community are better for the life that Eugene Secor lived.—Win-

nebago Republican (May).

* * *

SWARM CONTROL FOR COMB-HONEY PRODUCERS.

"Control of swarming with comb honey" is discussed by Dr. C. C. Miller in the June American Bee Journal. He says some swarm-control measures are much the same in the production of comb honey as in the production of extracted. Among such he mentions shade, large brood-chambers, wide spacing, and suppression of drones. As regards ventilation, he says the case is different. Altho comb-honey colonies also need ventilation to prevent their swarming, care must be taken in providing it. The entrance may be large, and the hive raised by inserting blocks at the corners between the brood-chamber and bottom-board, or there may be a two-inch-deep bottom-board with a bottom rack to prevent the bees from building comb under the frames. But if any opening is given above the brood-chamber, the cooler air will interfere somewhat with storing and very much with sealing.

However, Dr. Miller considers ventilation above so important that he believes the good resulting from it overbalances the harm. Therefore he advises that the super be shoved forward, leaving a quarter-inch space between the brood-chamber and super. The sections nearest the opening and immediately above may not be sealed as soon; yet in very hot weather they may be. He would not ventilate between supers, but has tried top ventilation with an opening in the middle of the cover and a $\frac{3}{8}$ -inch space between the upper and outer covers, and thinks such ventilation might, perhaps, be worth while.

He suggests an examination for queen-cells every ten days, destroying them whenever found if they contain only eggs and young larvæ; but if further advanced he advises shaking (that is, removing all but one comb of brood) or taking away some bees with the hive of brood and making increase; or if one desires the largest possible working force on the old stand he may cage the queen in the brood-chamber for ten days, or take her with two frames of brood and adhering bees and make a nucleus, returning her at the end of ten days, or, better still, giving a young queen at that time.

* * *

DANGEROUS TO TEMPORIZE WITH FOUL BROOD.

In speaking of the treatment of combs from foul-brood colonies, A. F. Atwater, in the Domestic Beekeeper for June 1, says that Thos. Chantry of Wellington, Utah, makes a practice of washing such combs

showing no disease, and using them again. He reports, also, that two neighbors have tried this with "sometimes but little recurrence of disease, and sometimes considerable." He brings up the question because he understood Mr. Townsend had been successful in cutting out foul-brood cells.

E. D. Townsend replies that the cells he cut out were in extracting-supers and not in the brood-chamber, and that they were not cells showing disease but simply cells that had been bred in. Those combs above an excluder that have never been bred in, he extracts from and then returns to the same colony to be cleaned, "the theory being that any spores of American foul brood not removed by the bees in this cleaning process soon lose their vitality and are harmless." [We wonder!—Editor.]

Old brood-combs with several layers of cocoons saturated with diseased honey he believes to be a source of danger, and therefore renders them into wax. He does not recommend cutting out foul-brood cells, but only in removing cells with cocoon walls from combs used in supers. He says: "A colony containing but a single diseased cell is consigned to the wax barrel. It is the cheaper way than to run any risk."

[We ourselves have washed out super combs from foul-brood colonies, and used them again; but we do not recommend it. In fact, we do not advise temporizing with foul brood at all, but, rather, to get rid of it as soon as possible. Our reason for quoting from this article is because Mr. Townsend makes a valuable point in saying that if one uses extracting-combs from foul-brood colonies, he should be certain that no cell is left above that has ever contained brood.—Editor.]

* * *

HANDY DEVICE WHEN MOVING BEES.

Preparing bees for moving has always been to me the bugbear of migratory beekeeping. Andrews Brothers, who had an apiary near Glendora last season, have simplified this task very materially by using clasps for fastening supers to hive bodies. The screens are fastened on in the same manner. These clasps are made of galvanized iron. One end is fastened to the hive body with a screw. The other end contains a slot which hooks over a screw set in the super. Four clasps are used on each hive body. When hives are equipped with these clasps, instead of spending a whole day preparing a truck load for moving, the job is finished in a few minutes.—Levi J. Ray, Western Honeybee (May).

* * *

PRICE OF HONEY.

From the tone of reports, beekeepers are going to insist that they get a good price for their honey; and if they co-operate properly, and do not throw large quantities of honey upon the market regardless of price, it is possible that the price can be maintained at a fairly high level. With sugar selling at from 11 to 13 cents a pound,

there is no reason why honey should drop very much. Other food commodities have dropped very little, and in many instances have advanced. * * * It is, however, a peculiar condition just at present, and very likely the beekeepers themselves will have more to do with the honey prices during the coming year than ever before.—M. G. Dant, American Bee Journal (June).

* * *

REQUEENING LAYING-WORKER COLONY.

To requeen a laying-worker colony, H. D. Murry, as stated in the May Beekeeper's Item, removes three frames from the side of the hive and introduces in the vacant space a two-frame nucleus with an empty comb or sheet of foundation between the nucleus and the laying workers. When requeening cross colonies he sometimes uses a nucleus in this way, and sometimes places the nucleus in a super above the colony to be requeened, a newspaper intervening.

* * *

WHY NOT RAISE A LITTLE COMB HONEY?

There will always be a certain demand for comb honey on the part of a consuming class that does not care for it in the extracted form. It is far wiser, therefore, to meet this demand, thus lessening the quantity of extracted honey materially and providing an opportunity for a better price for a more limited supply of this form of honey. Yes, we too believe it will be a good idea to put on a few comb-honey supers.—Louis H. Scholl, in May Beekeeper's Item.

* * *

SHIPPING HINTS.

Some shipping hints are given by I. B. Saunders in the May Beekeeper's Item. He says 75 per cent of the 60-pound cans they receive have only one handle. Much stronger handles should be used. Also greater care should be taken not to drive nails into the cans nor use cases with projecting nails that might wear a hole in a can. In a dry year or in cool weather, the extracted honey put with comb honey, he says, should be heated. He also gives the good advice that cans should not be left uncovered, since foreign matter is certain to get into the honey.

* * *

DECOY HIVES ILLEGAL.

Riverside County, always in the front where the interests of beekeepers are concerned, has passed an ordinance forbidding putting up decoy hives in trees along the highways or on any public property.—Western Honeybee (May).

* * *

The California Exchange's purchases of cans and cases for 1919, says the May Western Honeybee, will make up two large trainloads of cans and one trainload of cases, worth about \$180,000.

* * *

There is money in bees; but to get it out of them it often needs a skillful man." —Apicultural Journal (April).

QUESTION.—I am a beekeeper on the Isthmus of Tehuantepec. Honey is worth here \$1.00 a gallon, and wax \$1.12 a pound, U. S. currency. How should I work my bees to get a maximum of wax and limit the production of honey? Mexico.

Henry Knabe.

Answer.—We have never tried raising any great quantity of wax, and therefore we do not feel competent to answer your question. We remember one, W. J. Hughes of Yuma, Ariz., in 1917 more than doubled the output of wax; but the amount he secured was probably too small to interest you. At the beginning of the honey flow he confined the queens, by excluders, to the lower stories, and in the two supers above the excluders he placed from six to nine empty frames, the frames being interspersed among those having combs. As soon as the frames were filled with comb and honey he cut them out and dropped them into the cappings-box. At the close of the day's work the combs were thoroly crushed and chopped with a shovel, and the next day run thru the capping-melter. The results did not come up to his expectations; for at the close of the season he found that he had $2\frac{3}{4}$ pounds of wax for each 100 pounds of honey, whereas one has ordinarily 1 pound of wax to each 100 pounds of honey. You, doubtless, had in mind the raising of a much greater amount of wax than this. Still, under these conditions Mr. Hughes felt that the practice had paid him, since he believes there was less swarming than there would have been had the frames all been filled with combs. He said, however, that during an exceedingly hot time some of his combs fell down from the frames because they were not wired, and the result was that several of his best colonies were destroyed.

Questions.—(1) How many colonies can one man keep? (2) How soon could a person build up about 200 to 300 colonies from about ten swarms? (3) Has the bee business any future? (4) What amount of land is required to start a good-sized apiary? (5) Would you recommend getting a job in a large apiary?

Illinois.

— Elmer Schutte.

Answers.—(1) For a beginner we would not advise more than three or four colonies. These may be gradually increased as fast as experience is gained, until one has perhaps 300 or 400. If more colonies are desired, it will be necessary to have helpers. According to some authorities twice the number could be managed in certain localities with help only now and then. (2) It would be possible for an experienced beekeeper to build up from ten colonies to 300 in three years; but an inexperienced person would not be able to do this. In fact, he might not have more than 30 colonies, or even less than the number he started with. (3) Yes. But this does not mean that any man who takes it up can make a success of

GLEANED BY ASKING

Iona Fowls

it. (See page 427 of this issue.)

(4) One does not need to own land in order to start an apiary. It is easy to find some farmer who will be willing, for a nomi-

nal rental, to allow one to place his colonies in the orchard. (5) Yes, it would be a good plan to work for some beekeeper until you have gained a little experience.

Questions.—(1) I have been reading Mr. Somerford's method of forming nuclei, and am troubled to reconcile his tightly packing with grass, etc., on account of the statements on page 751 of the A B C book relative to smothering the bees so easily, and in so short a time, by closing their door. (2) In May Gleanings, Miss Fowls, page 327, suggests that frames of eggs and larvae from the lower story of the brood-chamber be placed in the upper one, replacing them with empty combs or foundation. This transfer could not be made with my equipment, since the brood-chamber is so much deeper than my supers. What other apparatus would I need, then, in the way of a second story? (3) Is an ordinary super ever used as a second-story brood-chamber?

Georgia.

W. A. Northrup.

Answers.—(1) Usually a small nucleus may have its entrance closed for a short time with grass; but during very warm weather there is danger of smothering the bees by shutting them in so closely that it is impossible for them to escape. The reason so many have used the Somerford plan with success is because the nuclei were so small. (2) If the supers were shallow it would be impossible to move the frames of eggs and larvae to the second story unless one removed the center frames from two shallow supers and hung the deep combs in the space thus left vacant—a very awkward arrangement, however, and we do not recommend it. The remedy for this would be to have one deep super for each hive; for even those beekeepers who prefer shallow extracting-supers often provide themselves with one deep super for each hive, to use at the time of swarming. (3) Yes, the ordinary deep super has exactly the same dimensions as the lower brood-chamber.

Questions.—(1) I have read a great deal about placing frames of brood and adhering bees in other hives. Why are the bees not killed? Is it because they are young? (2) Is there any danger, when picking up queens, that, upon placing them back on the frame, they will be balled? (3) What is the lowest temperature at which brood may be safely exposed and the greatest length of time of exposure? (4) With reference to the Alexander method of dividing, why do not bees left with brood return to their old location? Are they only young bees? Does brood at its latter stage make enough heat for it to finish growth and emerge of itself, or must it be kept warm until the very last day by attendant bees?

New York.

Arthur M. Cole.

Answers.—(1) When bees are placed in the hive of another colony by simply removing entire frames of brood with the adhering bees, altho those bees have a some-

what different odor from that of the colony in which they are placed, still they act quite naturally. In fact, many of them do not realize that anything has happened if the work is done carefully. Usually when fighting occurs the bees have been excited, and this helps to bring on the trouble. If a frame of young bees was taken, there would be no danger from fighting. When the frame is taken from the hive, and gently shaken, only the young bees are left on the comb, which may then be inserted in the other hive. (2) Bees would seldom ball the queen because she was picked up in the hand, and yet they would be more apt to do so than if she were not touched. Doubtless the hands change her odor somewhat. (3) When frames are handled, the bees cover the brood so that the temperature may be higher than that of the surrounding air; but we can not say as to the exact length of time required to chill the brood. However, the brood should not be handled at a temperature lower than 60 degrees Fahrenheit, and even then we would not leave it exposed longer than necessary. (4) When the brood is moved to a new location, some of the bees do return to the old stand, but these are the old bees. All of the young ones stay with the brood; and since they have never flown from the old hive they will always return to the new location. You see, by the time the brood is moved to the new location it is all sealed, and is, therefore, easier for the bees to keep warm. There is quite a little heat in the capped brood, but not enough, without the presence of bees, unless, of course, one were to put the brood into a room at a temperature of about 90 degrees.

Question.—Can you tell one how to distinguish swarming-cells from supersedure cells?

England. W. B. Wallace.

Answer.—In case of swarming, colonies usually build many more queen-cells than when superseding their queen. Furthermore, if the brood is carefully examined, one will note that in case of supersedure there is not nearly so much brood; and he will often notice, from the scattering way in which it is placed, that the queen is apparently failing. Sometimes colonies start out with the apparent intention of superseding but end by swarming. Supersedure cells are generally more uniform in size than swarming cells.

Questions.—(1) After the middle of April I put all weak colonies over strong ones (according to the Alexander plan), and, due to rush of work, I have not used many excluders, letting the queen have access to 25 combs. She invariably goes above, but is crowded down as the super is filled with honey—sometimes entirely so. I believe I do not get as much honey this way, and there is the trouble of having brood in the super. These combs containing brood and honey are left on the hives and filled with a later honey. I mark these combs and reserve them for winter stores. (2) Referring to the swarm control you practice, why is it necessary to tear out any cells in the top hive? I have frequently raised brood above an excluder, and had the bees develop cells to which I have never paid any attention. In fact, I should have never known that cells were

there by any results. (3) Why would it not be perfectly practical to allow the queen to mate from the top hive. (4) What is a desirable method or the most up-to-date practice of heating honey in the combs for extracting. A. W. Fleming.

New York.

Answers.—(1) In the method you have been using, do you not think that you would like it better to put the queen in the lower story below a queen-excluder after the danger of swarming is over? In that case, as soon as the brood above the excluder hatches, the bees would fill the cells with honey, and you would, therefore, overcome the objection to which you refer. (2) We should not like the plan of allowing queen-cells to hatch above an excluder when there was no upper entrance, since when handling the colonies these virgins might get into the lower story quite easily. More than this, we have had reports of such queens passing thru the excluder and leading out a swarm. If we did not tear down cells in that upper story, then if several colonies were treated the same day they would require attention again before our next trip, for we plan to visit our apiaries every seven or eight days. More than this, if we tear down the capped queen-cells, and again at the end of seven or eight days tear down all but one queen-cell, we then know that it is impossible for the bees to raise another in that story, since the brood will then be all sealed. (3) If a small entrance is left at the upper story, it is quite practical to mate the queen from above. This is when several supers intervene between the lower and upper brood-chambers. We do not think you will like the plan after the honey flow stops, however. (4) It has been pretty well proved that it does not pay to warm combs except as the whole room is warmed. In many extracting-houses they build a fire or have an oil stove, or something of that kind, to raise the temperature of the room for a few hours before extracting. It is impractical to attempt to heat two or three supers of combs by putting them for a short time in a high temperature, for there is danger of melting the combs. The safest way, therefore, is to raise the temperature of the room to a point, say, between 80 and 90 degrees for a few hours. The honey is then thin enough for extracting, straining, etc.

Questions.—(1) Miss Fowls, in the Beginners' Lessons, tells what to do "when the bees are bringing in nectar." I want somebody to tell me how one is to know when nectar is coming in. Are they always bringing in nectar when their baskets are laden with pollen? (2) Please let me know the prevention or cure for the cockroach pest in hives. W. N. Northrup.

Georgia.

Answers.—(1) Bees sometimes bring in honey and pollen at the same time, but they may bring in either load without the other. When bees begin bringing in honey they do not fly as lightly; also, there is a busier kind of humming which you will soon learn. The bees are also better-natured, and not inclined to rob; and when the hive is opened

unsealed honey will be noticed that will spill out of the combs quite readily. This is the nectar that has not yet been completely changed into honey. (2) We have known cockroaches to enter hives; and yet, if the colonies are kept strong, we have never known them to do any special harm.

Question.—Today one of my colonies swarmed, and all settled on the ground and on the leg of the chair holding the hive, and started to go back into the old hive. A lot went back, and then I got a new hive and set it there and took a large spoon and took the cluster off the leg and put it on the top of the frames. I found the queen in one spoonful. I put her on the top, and she went in. Then I put the lid on and all the rest that were on the chair and ground went into the new hive; but none which returned to the old hive afterward went into the new hive. Did I do right? or should I have allowed them all to go back into the old hive? I believe they would have done so, for they were going back as rapidly as they could.

Miss Laura Keel.

Nebraska.

Answer.—Your method of hiving bees was all right, only that it should have been applied a little sooner—before the bees had begun retiring to the old hive. If you find that there are not nearly enough bees in the new hive, it would be a good plan to take several frames with the adhering bees from the old hive and gently shake the bees from them in front of the new hive. If they are not shaken hard, only the older bees will fall off, leaving the young ones which should be returned with the frames to the old hive. In doing this, care should be taken not to get the frame having the queen-cell from which they are to raise their new queen; for if this comb is shaken, the queen will probably not hatch.

Questions.—(1) Last Sunday one of my colonies swarmed while I was gone, and a man tried to put them into an old box. On my return I asked him whether he thought it proper to have those bees since they were on my own lot, and only 30 feet from the hive. He said that as long as I had not forbidden him on the ground he had a right to trespass. Now, had this man a right to trespass, and have those bees on my premises? (2) Have I a right to go to my neighbor's orchard, without asking him, and have a swarm of bees that left my apiary? (3) How can I see the queen when hiving?

Indiana.

Chas. J. Maurer.

Answers.—(1) If the man followed those bees from his own hive to your land he would own the bees, but he would have no legal right to touch them. Of course, if they came from your own hives he had still less right on the land. (2) According to law, if your own colony left the hive and went to a neighbor's orchard the colony would still be yours; but in order to have the swarm and take it home it would be necessary to get permission from the owner of the orchard. As a matter of fact, however, there is not one person in a hundred that would think of objecting to allowing a man to have his own swarm of bees, even if the swarm did happen to be trespassing at the time. (3) It is not necessary to see the queen when hiving a cluster of bees. The only time it is necessary to see the queen when hiving is when she has clipped wings and is not able to join the cluster.

In this case she will doubtless be found crawling in the grass in front of the hive.

Question.—I had a colony of bees in a box hive, and I wanted to transfer them into standard hives. So I put a standard hive on top of the box hive with full sheets of foundation in it, and then drummed the bees up into it. When I got the queen up I put an excluder between so she could not get back down. In two or three days I looked at them, and all the bees were back down, and the queen was on the excluder dead. What was wrong?

Indiana.

W. Crumrine.

Answer.—The plan you used would have been successful if you had only left one frame with a little unsealed brood above. If this had been done the bees would not have deserted the upper story.

ANSWERS BY DR. C. C. MILLER.

Questions.—(1) If queen mailing cages are bought with candy in them, will the candy remain good until the following year? (2) If the brood-chamber is full of capped sugar syrup, will they carry any of it up into the supers when they are bringing in nectar? and will they carry it up when they are enlarging the brood-nest? (3) Do you think it is a good idea to get the small honey-boxes built out with sugar syrup so that they will be all ready when the nectar comes in? C. C. Mackey.

New York.

Answers.—(1) Not so good. It is likely to be too dry; but if kept for a time in a moist place—perhaps a steamy place—it might be all right. (2) Bringing in nectar would not send the syrup into the supers; enlarging the brood-nest might. It is well to be at least very careful about such things. (3) I do not believe it would do at all. You cannot get comb built out without having something stored in it, and you certainly do not want any syrup stored in your sections.

ANSWERS BY H. H. ROOT.

Questions.—(1) I am thinking of building something like the Bartlett-Miller capping-melter, and should like to know about how large to make it. I had thought of making the melter with half-inch tubes along the top. The object of the small tubes is to let the honey escape without having to travel very far and becoming discolored by being heated too long, and getting hotter than necessary. I should like your advice as to small tubes. There may be some objection that does not appear at first sight? (2) Would brass tubes be apt to injure the honey? (3) What should be the distance between the tubes? C. E. Andrews.

Nevada.

Answers.—(1) I would hardly care to encourage one in making a capping-melter on the Bartlett-Miller principle. Small tubes have been abandoned by several who have tried them. Mr. Bartlett-Miller himself found that they were not satisfactory. They soon fill up with propolis, and bits of cocoons slide off with the cappings. Furthermore, it is almost impossible to melt the cappings as fast as they drop down from the knife on steam-heated tubes as small as these. In spite of all one can do, he will overload the tubes unless he has an extremely large surface, say a melter several feet long, which would be impractical. (2) Brass tubes would be very apt to discolor both the honey and the wax. (3) The tubes can not be much further apart than 3/16 of an inch, else the cappings will fall thru unmelted.

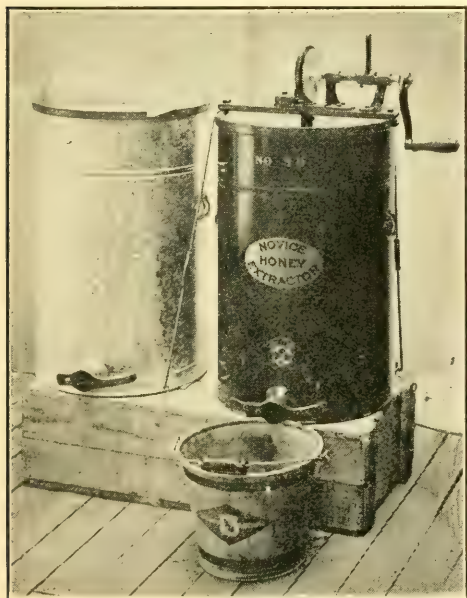
WHILE July and August are in the dead of winter in Australia and New Zealand, for the majority of beekeepers in the northern part of the United States and in Canada these months tell the story of the year. The time of the honey harvest is the culmination of the beekeeper's hopes, the realization of his ambitions, and the climax of his efforts.

Frequently the secret of the difference between success and failure lies in the attention paid to small details. How often is the fruit within our very grasp and we stumble in the grasping of it.

In June the comb-honey producer has had his hands more than full in keeping the bees contentedly at work in the sections and curbing their feverish desire to swarm. Swarms there will be in a comb-honey yard. A beginner need not be discouraged if he has considerable swarming, for the most experienced comb-honey producer, in some years at least, can not absolutely control the bees' desire.

Queen-excluders Unnecessary for Comb Honey.

Fortunately, few queens show much tendency to enter comb-honey supers or to lay



Extractor and straining can.

eggs in the sections. The section is abnormally small for a brood-comb, and the queen seems to realize this, hence the comb-honey producer as a rule does not need to use a queen-excluder between his brood-chamber

TALKS TO BEGINNERS

By H. H. Root

and the supers. An occasional queen may show a tendency to go above, but it is better to replace that one queen than go to the expense of using excluders on all

the colonies in the apiary.

Pollen in Sections.

Occasionally quite a few sections, otherwise perfect, are ruined for market by the presence of cells of pollen. If there is plenty of brood to use up the pollen and if the bees have plenty of room for the storage of pollen in the brood-combs, they are not so likely to store it in the sections, for they prefer it as close to the brood as possible. But if, thru neglect or mismanagement, the bees have been storing a rush of honey in the brood-combs, thus limiting the space for brood-rearing and leaving no place for storing pollen close to the brood, some of the pollen inevitably goes into the sections. Such sections had better be sold locally, possibly to friends or neighbors to whom the presence of the pollen can be explained.

When to Take off Comb-honey Supers.

It is rarely wise except at the end of the season to wait until the last section is completely capped over. Better get the supers off when the sections are completely finished with the exception of two or three at each side. These can be placed as "baits" in the next super to go on. Remember that the sooner a section of comb honey is taken off the hive after it is completely sealed over, the whiter and nicer it will be. If left on too long it becomes what is called "travel stained." Especially is this true when the honey flow ceases. The bees seem to take peculiar delight in walking all over the comb honey and in depositing more or less propolis here and there, giving it an uninviting varnished look.

The Bee Escape-board.

The beginner had better use a bee-escape to get the bees out of comb-honey supers. True, they may be smoked out, or jarred or shaken out, but the bees when rudely disturbed are more likely to uncap some of the sections. Therefore, the more quietly they can be got down off the honey the better. Moreover, in trying to jar or shake bees out of a super there is always some danger of starting robbing. Always put the finished super on top of the others, then slide the bee-escape under it. In this way the bees will not be trapped out of the unfinished supers. A fresh super of sections filled with foundation may be put on before a finished one is removed, except of course at the last of the season.

Taking Extracted Honey.

The escape-board is not absolutely necessary in freeing extracting combs of bees, altho the new ventilated type of escape-

board, with generous space each side of the escape covered by wire screen, is far better than the old solid escape-board. Therefore extracted-honey producers are more and more coming to use the bee-escape. If slipped under full supers in the afternoon, by

the honey off the hive one day and extract the next. The sooner the honey is extracted after the bees are off the combs, the better, for being thin by reason of its higher temperature it extracts easier and strains faster. Here lies the most important advantage of the ventilated escape-board. The honey above the escape is subject to the high temperature of the hive, and does not cool off as it does when a solid board is used.

The Arrangement of the Equipment.

An expert may extract honey with an inadequate equipment and do tolerably good work, but a beginner should not attempt extracting until everything is convenient. Even the expert learns that time spent in making adequate preparation saves money in the end.

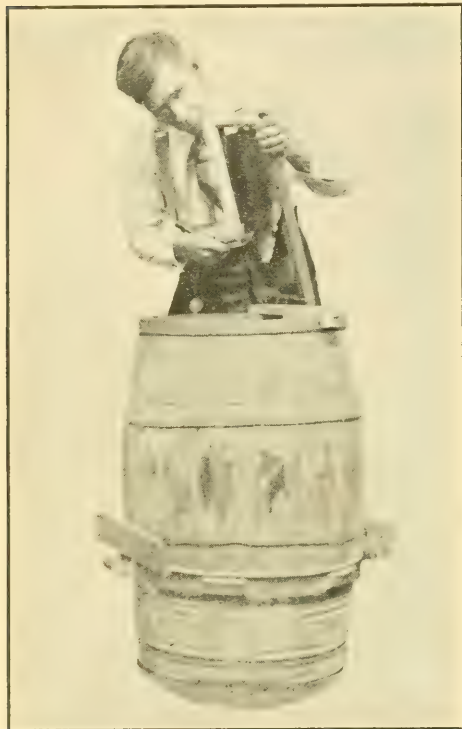
The extractor must be solidly anchored. There is no greater nuisance than that of trying to use an extractor that wobbles all around. If conditions are such that the extracting is done in a two-story building, the upper story of which is on a level with the beeyard, and the lower story on the level with a driveway, that is ideal. The extractor may then be placed directly on the floor, the gate standing over an opening leading into a tank in the room below.

A honey-pump is the cheapest substitute for such an ideal condition, where the natural surroundings prevent any such arrangement; but the pump itself is not to be considered for a hand-driven extractor. Therefore, we will consider the equipment for the beginner who has neither of these ideal conditions.

The extractor should be secured to a solid box of such a height as to permit a galvanized pail to be placed under the gate. There should be a tin tray about eighteen inches square and two inches deep for the pail to stand in, so that, if by chance the pail runs over, the honey will be caught. It is easier to empty the tray than to mop the floor. However, never leave the extractor gate open while the extracting is going on. The pail will run over, sure as fate. Wait until the level of the honey has nearly reached the lower bearings of the extractor, place the pail under the gate and jerk the handle wide open; the full stream will quickly fill the pail, which can then be emptied into the straining can, the gate always remaining closed except when the pail is being filled.

Between the extractor and the door should stand the uncapping apparatus. A cheap cracker barrel with both heads knocked out, with a quarter-inch mesh screen nailed on the lower end makes an excellent uncapping can. A cleat nailed on each side of the barrel about four inches from the lower end will support it in a galvanized tub. A narrow board should be nailed across the top of the barrel with a projecting nail point in the center on which to rest the end-bar of the frame while uncapping the comb. Such barrels are cheap and several of them can be prepared in advance at very small

(Continued on page 474.)



Most beekeepers uncup beginning at the bottom and cutting up, the cappings hanging clear of the uncapped surface because the top of the comb is tilted forward gradually as the knife moves up. The cappings in the barrel should be frequently stirred and punched with a stick to facilitate draining.

the next day the combs may be taken out with hardly any bees on them. No fuss, no uproar, no stinging.

If the bee-escape is not used each comb may be given a sharp shake or two in front of the hive, the bees falling down on the alighting-board, then each side of the comb given a quick brushing before placing the frame in the specially prepared carrying box, preferably on a wheelbarrow. (It is necessary to work fast to avoid robbing.) Combs should not be extracted that are not at least three-fourths sealed over. The bees can do the ripening of the honey cheaper and better than man can possibly do it by any artificial methods. There is nothing to be gained and everything to be lost by extracting green, unripe honey, which in all probability will ferment before it reaches the consumer, thus killing future sales and injuring the honey industry generally.

It is not a good plan ordinarily to take

MAY the Lord in his great mercy bring to your hearts this message that I am dictating to you on this 2d day of June, 1919. At different times recently I have been thinking that, before long I shall probably dictate my last Home paper; but rest assured, dear friends, that, as long as I have life and

strength, this department of our journal shall be kept up. Just now there is a series of articles appearing in the *Sunday School Times*, entitled "How Lawyer Scofield was Won to Christ," by my good friend Charles G. Trumbull. Well, in the issue for May 17, Mr. Trumbull writes as follows:

Shortly before this chapter of the Life Story went to press, the writer received a letter from Dr. Scofield that he gladly incorporates here, so that many may rejoice in the marvel of its testimony.

After the above, the letter was given; but I have space to put in only the concluding earnest appeal to his long-time friend Mr. Trumbull, as below:

And—oh! Trumbull, put it into the story, put it big and plain: instantly the chains were broken never to be forged again—the *passion for drink was taken away*. Put it "Instantly," dear Trumbull. Make it plain. Don't say, "He strove with his drink-sin and came off the victor." He did nothing of the kind. Divine power did it, wholly of grace. To Christ be all the glory. C. I. SCOFIELD.

The point in the above that particularly impressed me was the expression, "He did nothing of the kind." The reason why it impressed me is because it was so emphatically my own experience. I did not, like Scofield, strive with the *drink habit*; but I *did* strive with Satan; and I am impressed that it does not make very much difference how he comes—it is all the same thing. Again and again did I resolve to break loose and be a man, but only to be tripped up once more until I lost faith in myself and faith in God, and, I fear, faith in everything. I shall always remember vividly going out into the woods one Sunday afternoon. I sat down on a log, and thought it all over. I went over my childhood and thought of my good mother's teaching, and how *she* would be grieved to find that I had, after all, turned out a



He brought me up also out of a horrible pit, out of the miry clay, and set my feet upon a rock, and established my goings.—PSALM. 40:2.

Let the words of my mouth and the meditation of my heart be acceptable in thy sight, O Lord, my strength and my redeemer.—PSALM 19:14.

If ye, then, being evil, know how to give good gifts unto your children, how much more shall your heavenly Father give the Holy Spirit to them that ask him?—LUKE 11:13.

wreck. Yes, I meditated that if things should go on as they had been going I *might*, in process of time get behind prison bars. Finally, I rose up and raised my right hand and called on God to witness that henceforth and forever I would be a different man. I started home feeling brighter and happier, without a single

doubt in my mind but that I, and I *alone*, mind you, could carry out what I had been planning and proposing. Now, please note, dear reader, I did not say a word in my pledge out there in the woods, in the way of asking *God* to help me. I alone was going to do it all. What was the outcome? I am ashamed to tell you. Almost before I reached my own door Satan tripped me up more completely than ever before. I lost heart. I said it was of no use. Let me digress a little.

Months later, when I really *knew* the good Lord had lifted me out of the "miry clay," and placed my feet on the "rock," I visited a poor soul who was a slave to intemperance. I told him what the end would be if he kept on; but he said something like this:

"Mr. Root, I realize all you say; but when I get astride that horse I have got to ride wherever it goes. I really can not help myself."

Now, I had that same feeling after that final defeat. Please read that sentence again from Scofield. He said to Mr. Trumbull, "Do not say he strove with drink and came off victor." Scofield, like myself, gave up discouraged and defeated. He adds with emphasis that he "did nothing of the kind. Divine power did it. To Christ be all the glory."

I often used to work away on toward midnight when things were crowding. Well, one night when the shutters to the store had been put up, the lights put out, and I was alone in the darkness, I knelt on the dusty floor and prayed. It had been years and years since I had uttered anything in the form of prayer, and the words were something to this effect: "O God,

if there be a God, have mercy on a poor, discouraged and defeated human being." I do not know what I expected or whether I expected anything; but something *unexpected* came into my mind. Put in words it seemed like a voice saying, "Child, what do you want? What is it that you crave?" Then I answered aloud, continuing my prayer, "Give me back, if it is a *possible* thing, the happy innocence of childhood." It was so long ago I can not remember distinctly the outcome; but for the first time it dawned on my consciousness that I was to be relieved from responsibility. I was to stand to one side and let the Lord do the work.* I went home with a new and happy feeling in my heart that I had not had for years and years. My mother's teachings vividly came back; and as soon as I reached home I hunted up the old neglected Bible. I opened it somewhere in the New Testament; and, oh, how different that Bible seemed! A great searchlight, as it seemed, was turned on those precious pages. I think I kept reading until after midnight; and with the morning light I started out with my feet on the solid Rock.

Now, the great point in the above that I could not understand was that help outside of our own selves is promised to all who accept the help of "the Lamb of God that taketh away the sin of the world." It is almost fifty years since what I have been telling you happened. I have told you again and again about that little prayer of mine. I have sometimes called it my "emergency prayer." I have told you, too, that after a while, when I had got so much in the habit of breathing it inwardly (or even out loud, when I was away all alone) that this little prayer would come up of itself, and it seemed almost as if some good friend were near by; and when I was tempted to be harsh or severe, before

*It occurs to me that a little further explanation is needed right here. I do not know how long I remained on my knees. Some way it was made plain to me that before I could have back the innocence of childhood there would have to be an "unconditional surrender." The words of an old hymn express it vividly:

Here I give my all to thee—
Friends and time and earthly store;
Soul and body thine to be—
Wholly thine for evermore.

Before I consented to such a surrender as the above there was quite a debate going on in my mind. I might be called on to give up bee culture or this little journal. As I mentally reviewed the conditions expressed in the above verse I began to think that (like poor Germany) the conditions were too hard; and then the new and precious light began to fade away and old temptations came back. I finally promised the good Lord to let *him* lead and I would follow. Of course, Satan whispered that it would ruin my business and ruin my life. Did it do so? Not much.

I opened my mouth the "Lord, help," would seem almost as if spoken by somebody to bid me be careful.

Now, during the past few months another experience—a wonderful and most precious experience—has come into my life. Some of you will recall what I have said about our second text—"Let the words of my mouth and the meditation of my heart be acceptable in thy sight." Last fall, after I got back to my Bradentown home, I repeated the text in the prayer-meeting, and remarked something like this:

"My good friends, I do not know but I have been priding myself for years past that I have made very few hasty speeches, or said things that I was sorry for afterward. Perhaps I have been priding myself that I have succeeded pretty fairly in regard to 'the words of my mouth;' but when it comes to the second part of this beautiful text, 'let the *meditation of my heart* be acceptable in thy sight,' oh, dear me! it seems as if I shall never be able to stop thinking of things that are bad or unprofitable. And I prayed over it, and my prayer was answered. God, in his wonderful kindness, love, and mercy, sent a little monitor—perhaps it was the 'still small voice' that is promised to his children." Let me digress a little.

A great part of my good father's life was made unhappy because of the faults of others. A line fence was not where it ought to be, cutting off perhaps half an acre of his farm, and this made him unhappy for several years. Well, I have thought sometimes that I inherited this disposition to dwell on things of this kind until they spoiled my peace of mind. See the following, which I clipped from the little tract, "How to be Happy when People Abuse You."

THE DEFEAT OF INJUSTICE.

No one can ever afford to think about any injustice he receives. It is disaster and destruction to do so. It is like deliberately lifting a glass of poison to our lips and swallowing it. Injustice inflicted upon us never harms us until we dwell on it. While we ignore it, and do right, it is powerless against us. When we begin to turn it over in our mind, it starts its murderous work upon us. It soon exaggerates itself, blinds us, rankles, inflames, embitters.

By the way, the above, also, comes from my good friend Trumbull. Well, even of late years (I am ashamed to confess it) when I have not been strictly truthful, or when I am tempted to criticise somebody because he did not live up to my ideas or notions, I get into an unhappy frame of mind. One day when I was feeling stirred up by something of that sort I was almost startled at something that seemed like a voice that suggested "meditation of my

heart." I felt like looking around to see who it was that spoke. In a little while I caught myself again dwelling on something that was unbecoming a follower of the Lord Jesus Christ, especially for a man of my age. Then again came that "still small voice."

It would seem that my good friend Ridgeway, of the *Sunday School Times*, has had a like experience. See below, clipped from his "Busy Men's Corner":

THE GREAT MYSTERY.

There came from heaven a sound as of the rushing of a mighty wind (v. 2). Did you hear the Holy Spirit? Have you ever had any intense religious experience in which you "certainly heard something," and turned to see? Have you ever felt the pressure of the Holy Spirit in a time of deep feeling? Well, be sure there are lots of folks who have had such visits from Heaven, and I am one of them. They are too sacred to talk about, and some of them too holy to think too much and too long about (2 Cor. 12:4). One of earth's greatest mysteries is the mystery of the Holy Spirit.

Now a word more, before closing, in regard to the second text. It was David's *prayer*. What does it mean that a human being should make such a prayer? A friend of mine, who has been reading

GLEANINGS for many long years, rejects the Bible and its teachings. Let me ask him where else in the whole wide world of literature can we find anything like that little text? Suppose the whole wide world should make this prayer their prayer. The first half-dozen words imply that David is talking to his heavenly Father, God, who created him in his own image. The next half-dozen words recognize the fact that the Creator reads even our thoughts. Then how beautifully that word "meditation" comes in! and the idea of how this wonderful thing is to be accomplished seems to imply the impossibility of it, without help; and this help he expresses as "my strength and my redeemer." Does not this text foreshadow the coming of Christ the "Redeemer" of the world? How many professing Christians are there who dare make this prayer their prayer? We shall indeed have a "new heaven and a new earth" when the whole wide world can honestly say, "Let the words of my mouth and the meditation of my heart be acceptable in thy sight, O Lord, my strength and my redeemer."



POULTRY NEWS

"HOW TO MAKE HENS LAY."

My good friends, I am glad to be able to answer the above oft-repeated question in just two words—*love them*; and, by the way, those two short words will do a lot toward helping things along in this great world of ours. Love your work, and especially love your domestic animals; love your plants and trees; and above all and over all, love humanity. Yes, love poor, feeble, infirm, neglected, and *forgetful* humanity. Love even *your enemies*. Love humanity as God loved it when he "gave his only begotten Son that whosoever believeth in him should not perish but have everlasting life." Let us now get back to the chickens.

I have often mentioned my good friend Abbott of Bradentown, who for years has kept chickens away up into the thousands or close to a thousand anyhow. But when eggs were away down and feed away up I fear he became somewhat discouraged; and last season, when honey brought such a high price I think he rather neglected his poultry. When I first met him last fall I said, "Friend Abbott, how many laying hens have you?"

"About seven hundred."

"Well, about how many eggs are you getting a day from your seven hundred hens?"

"Oh!" replied he, smilingly, "just now we get six or seven—sometimes a little more."

"Why, you don't mean to say that you get only *six* or *seven* eggs from about seven hundred hens, do you?"

He laughingly replied, "Mr. Root, I shall have to acknowledge that I do not pay much attention to the hens since we have been so busy with the bees; and I really do not know how many my man does get; but it is very few."

Now, friend Abbott had some hens that came from my Lady Eglantine stock, and I knew they ought to lay. I told him I wanted to buy about a dozen hens for experiment. I could tell them from the others because they had leg-bands. Well, even if they did have leg-bands it was something of a task to hunt up a dozen of them out of six or seven hundred. They were going to take them off the roost, but neglected it until I got around. So he caught them with a pole with a hook on the end of it, and this scared the whole flock so badly

that I felt sure it would interfere with their laying. When I got them home they were so badly frightened that they put off into the woods, and I could hardly call them back to get their feed. You may remember that I have been feeding my poultry in galvanized washtubs, the tub being set on a post just high enough so the hens could get in while the Florida rats could not. Well, now, that is a very good way to feed Leghorns to save time; but in one respect it is not the best way. I worked my very best for two or three weeks to become acquainted with those twelve hens, and to make them understand I loved them. I made it a study to find out what things they like the best, and to carry them some little delicacy or something they liked, two or three times a day. I do not think I got an egg till three or four days had passed, and it took two or three weeks to get them all to laying. But they finally became so tame I could pat them on the back and call them "good biddies" and then they began to lay. One hen died during the winter; but from the eleven remaining I soon got nine or ten eggs every day. When we started home to Ohio I carried the eleven over to a beekeeper friend two miles away. To avoid having such another scare in the transfer I shut them up the night before, and then put them in very light loose burlap sacks, four hens in a sack, the next morning. They were so well acquainted with me that they were not frightened at all, feeling sure I was not going to hurt them.

By the way, for moving poultry short distances I think a loosely woven burlap sack the very best thing you can use. It is better than a box and putting them all in together and leaving them loose. The sack gives them room enough to stir around, and plenty of air, and yet they can not well see what is going on around them. I took them in my electric automobile that makes no noise, and they were just as quiet when I handed them over to my neighbor as when I started with them. Below is the result:

Dear Sir and Friend:—The Eglantines feel very much at home, being contented and very tame. I had their house all furnished before I put them in, with litter on the floor and feed scattered in the litter. I wanted the first impression a good one, and I think I succeeded as they gave me 11 eggs the first day. My six pullets, not wishing to be outdone, gave me six eggs, making 17 eggs from the 17 hens and pullets—a result that probably will not be duplicated this summer. I am getting from 10 to 12 a day now from the 17.

I am pleased to note you reached home all right.

E. S. DART.

Manatee, Fla., May 12, 1919.

From the above, my friends, you see the *result* of handling chickens in such a way

that they will not be worried nor frightened at all; and the reason for this is because they know by experience, that you love them and would not harm them needlessly. Another thing is, these eleven hens were of the Eglantine strain—a strain of White Leghorns that are bred *to lay* and for nothing else. The owners of the Eglantine Farms pay no attention to fancy markings whatever. I do not think they care a cent whether the tails of the males stick up or hang down. They are just bred for eggs. The strain is bred to be gentle and quiet, because quiet gentle hens are more likely to lay. I have had these Eglantines more or less now for four or five years, and they beat any other breed of poultry I ever had anything to do with. Just now while I write (May 21) we have only four Eglantine hens; and these four furnish three or four eggs a day, which are about as many as Mrs. Root and I care for.

Now, to avoid having you write me, I would say that the Eglantine Farms are at Greensboro, Md. I think you will be pleased with the circular they send out.

MAKING HENS LAY IN DECEMBER AND JANUARY WHEN EGGS BRING THE HIGHEST PRICES.

On page 53 of the December issue I mentioned this matter; and since then I have noticed by the poultry journals that in California they are making the long nights shorter by means of electricity on a large scale. Furthermore, Mr. M. F. Bryant, Mr. Calvert's son-in-law (and by the way, the father of one of our little great-grandchildren), has been, during the past winter, experimenting with an electric light in the henhouse. He turns on the light about the time the hens seem inclined to go to roost, and keeps it on till about 9 o'clock. At the same time they are provided with plenty of litter, and they keep scratching and eating so as to make the period without any food while on the roost about as short as during May and June; and he reports the result as being highly satisfactory. Not only did he succeed during the winter months in getting 18 eggs from 18 hens on one occasion, but he says he did it several times. The average was 16 to 17 eggs a day. The breed was the Plymouth Rocks; and the above result is certainly as good as or better than I ever got from the Leghorns. Of course the big breeds would have to have more food. Down in Florida during the month of December we got as high as 60 cents a dozen for eggs; but when I came away in April, at one time they paid only 30 cents.

Now please consider this electric-light business is, after all, right along in line with the two words I suggested. Giving them the electric light and extra food in the nighttime is only one of the ways of letting the biddies know that you love them. By the way, on this 22d day of May the weather is getting so warm that I am putting up a pole attached to the evergreen trees so the four biddies can roost out in the open air when they prefer to. When it is cold and stormy they can go inside their little poultry-house. You will find a picture of said poultry-house and the biddies on page 878, GLEANINGS for 1916. At that time I called it my "outdoor sleeping porch" for the Eglantine chickens. Later, the four Eglantine hens that I now have that are giving four eggs a day a good deal of the time, are away on other premises during the six months we are absent. But they all seem glad to get back to their "old hunting grounds" among the evergreen trees. They remember their drinking place, their outdoor sleeping porch, and the fact that they have a ramble outside with the gate open every day about sundown. In fact, they gathered about the gate about the time we used to let them out, the very first day they were put back in their old quarters. When I get back to Florida in November I find my chickens down there remember things just the same. Chickens oftentimes have better, and more accurate, memories than their keeper, and it pays to keep this in mind when you are striving to "make hens lay."

Altho I am making a long story of this, friends, I am impressed there is something further that should be added. It is a wonderful task for a hen to lay a fair-sized egg every day; and to do this she must have the best of feed, and have it at frequent intervals. During the part of the year when the nights are long the crop is crammed to its utmost capacity when she goes on the roost; but even this is not sufficient; and therefore, ordinarily, laying hens take a rest during the early fall and winter months. A molting period comes in about this time, and both together make the price of eggs run away up. Now, making the day longer and the night shorter by means of electric light gives her a chance to get sufficient feed to enable her to lay an egg every day much as she does in the months of May and June; and I want to add right here that neighbor Abbott's 700 hens gradually commenced laying after the days got longer, and during spring, and he had a very profitable egg crop. Now here comes something that should be well understood. Of course, you have seen ad-

vertised in the poultry journals and farm papers—yes, even in the religious papers—"dopes" to make hens lay. The advertisement reads that if you give the chickens their peculiar "condition powders," or whatever it may be, and it does *not* start them laying, you can have your money back. And I think that most of them—at least I hope so—*do* give the dollar back when asked to do so. Can anything be fairer? Well, most people think so; but please notice that these advertisements come in all the papers along toward spring, just at a time when the hens would naturally begin to lay; therefore the dope does the business—at least it would appear so, forgetting that hens at this precise time of the year would all at once begin to lay, even if they *didn't* have the "tonic."

THE CHAYOTE ONCE MORE.

My Dear Mr. Root:—Knowing your fondness for new things I send you by mail a "chayote" or mango squash. Plant the whole business, keep well fertilized, and you will have a squash vine for 8 or 10 years, bearing what is to me the most delicious squash I ever ate, cooked as you do summer crookneck and other squashes. Then too you can pack them away in dry sawdust and have them all winter. They are fine stock for pickles, being more crisp than cucumbers; they are also good fried as eggplant.

I forgot to state that the chayote will not fruit much till cool nights come in September when it will do business in great shape. I have had more than five bushels this season from two vines. I let them grow on my grape arbor. Sincerely yours,

J. C. BATES.

Lake City, Fla., Jan. 14, 1919.

With the above letter came two samples of the chayote squash—see GLEANINGS for 1917, page 641, where we picture and describe the chayote. See also pages 803 and 886. Our readers will note from the above that the two chayotes were received about the middle of January. Well, about the last of April, or 100 days after the receipt of the plants, one of the vines had grown so far as to give two very nice fruits or vegetables, or whatever you may please to call them. Mrs. Root and I both agree with what friend Bates says in regard to them. The Department of Agriculture has been, for two or three years past, mailing samples to plant wherever asked for. I do not know whether they are giving them away now or not, or whether my friend has any left of his "two bushels" from two vines.

The chayote is about the rankest grower of any vegetable I know of. I presume they can be started in the North in the greenhouse (like tomatoes and similar things) so as to bear some fruit at least, before frost comes.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Dero Taylor Co., Newark, N. Y.

FOR SALE.—Extra quality buckwheat extracted honey in 60-lb. cans. J. W. Hosie, East Aurora, N. Y.

FOR SALE.—Michigan's Best extracted honey in packages to suit; white clover, raspberry, milkweed, buckwheat. A. G. Woodman Co., Grand Rapids, Mich.

HONEY AND WAX WANTED

WANTED.—Comb and extracted honey, also beeswax. Send samples. C. S. Fryer, 386 Halsey St., Portland, Ore.

BEEWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED.—Comb and extracted honey, car lots and less. Mail sample, quantity, and price. W. Morris, Yonkers, N. Y.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations. M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted. Hoffman & Hauck, Inc., Richmond Hill, N. Y.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston. M. V. Facey, Preston, Minn.

BEEWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

FOR SALE

HONEY LABELS.—Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

SEND TODAY for samples of latest honey labels. Liberty Pub. Co., Sta. D, Box 4E, Cleveland, Ohio.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

FOR SALE.—200 second-hand 60-lb. honey cans in good condition. John Kneser, Hales Corners, R. F. D. No. 1, Wis.

FOR SALE.—Pan Handle beekeepers, please note that you can buy Root bee supplies "next door." Will C. Griffith & Sons, Elm Grove, W. Va.

LANGSTROTH COMBS.—In plain hanging frames, built on wired foundation, free from any bee disease, for sale in lots of 100 or more, at \$20.00 per 100. Elmer Hutchinson, Lake City, Mich.

FOR SALE.—Two extractors, uncapping-cans, honey tanks, extracting outfit with supers, hives in flat. Bargain. Would take bees, queens, or honey. The Liberty Press, Box No. 224, Shenandoah, Ia.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies. R. & E. C. Porter, Lewistown, Ills.

SPECIAL SALE.—One-story 8-frame dovetailed hives, in flat, with telescope $\frac{7}{8}$ wood covers, in packages of five at \$10.00 per package. A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE.—If you wish to know where to save money on bee supplies send for our new price list. It may be worth your trying. H. S. Duby & Sons, St. Anne, Ills.

FOR SALE.—Second-hand 60-lb. cans, two to the case, 50c per case f. o. b. New York. Also second-hand maple-syrup cans at 10c each. Hoffman & Hauck, Inc., Richmond Hill, N. Y.

FOR SALE.—Four 8-frame, two 10-frame hives, with frames, \$1.00 each; 15 supers for 8-frame bodies with sections, 50c each; 500 section-honey boxes, $4\frac{1}{4}$ -inch, never been uncured, \$2.50. Chester V. Kimmell, Ligonier, Ind.

FOR SALE.—Mr. Beekeeper of Alabama, Florida, Georgia, Louisiana, Mississippi, and Tennessee, send me a bill of your wants of bee supplies and let me make you good prices on the same. M. Bates, Greenville, R. D. No. 4, Ala.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Bee-ware. Our new price list will interest you. We pay 36c in cash and 38c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

WANTS AND EXCHANGE

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

TO TRADE.—Model 10 Royal standard type-writer for saw table, queen-excluders, hives, or equipment, bees, honey, beeswax, or \$75.00 in cash. Cash for honey and wax. Send sample and price. E. A. Harris, Albany, Ala.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 38c cash, 40c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival. The A. I. Root Co., Medina, Ohio.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1919 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Son, Hamilton, Illinois.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 84 Courtland St., New York.

Hardy Italian queens; one, \$1.00; 10, \$8.00. W. G. Lauver, Middletown, Pa.

FOR SALE.—1919 Golden Italian queens, price list free. Write E. E. Lawrence, Doniphan, Mo.

Queens on approval. Bees by package or colony. A. M. Applegate, Reynoldsville, Pa.

Golden Italian queens, untested \$1.00 each, six for \$5.00. E. A. Simmons, Greenville, Ala.

FOR SALE.—100 colonies of bees in up-to-date hives. J. N. Tull, Kenton, Tenn.

FOR SALE.—300 colonies Italian bees, cash or trade. Fred Alger, Waukau, Wis.

FOR SALE.—Golden Italian queens, untested, \$1.00 each; tested, \$2.00. J. F. Michael, Winchester, Ind.

PHELPS' GOLDEN QUEENS will please you. Mated, \$2.00. Try one and you will be convinced. C. W. Phelps & Son, Binghamton, N. Y.

THREE-BAND Italians only. Untested queens, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00. H. G. Dunn, The Willows, San Jose, Calif.

"She suits me" Italian queens, \$1.15 each from May 15th to Oct. 15th; 10 or more, \$1.00 each. Allen Latham, Norwichtown, Conn.

FOR SALE.—Indianola Apiary offers Italian bees and queens; tested, \$1.50; untested, \$1.00. J. W. Sherman, Valdosta, Ga.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, \$1.00; mated, \$2.00. C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Golden Italian queens ready April 15; \$1.00 each; \$10.00 per dozen. W. W. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—Three-banded Italian queens, untested only, one, \$1.50; six, \$8.50; dozen, \$16.00. P. C. Chadwick, 725 E. High Ave., Redlands, Calif.

FOR SALE.—3-band and Golden queens and nucleus. Queens, 1, \$1.50; 6, \$7.50. Allen R. Simmons, Claverack, N. Y.

FOR SALE.—Italian bees in 1½-story 8-frame Massive and dovetailed hives, \$8.00 each. Thos. M. Keller, Dongola, Ills., R. F. D. No. 3.

Italian queens of "Windmere" for sale. Untested, \$1.00; tested, \$2.00 each. Prof. W. A. Matheny, Ohio University, Athens, O.

FOR SALE.—Finest three-banded Italian queens, 1 for \$1.25; 6 for \$7.00. J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

FOR SALE.—400 colonies, 10-frame, full equipment. Out-apiary privileges. Chas. Schilke, Matawan, R. D. No. 2, N. J.

Leather-colored Italian queens, tested, June 1st, \$1.50, untested, \$1.25—\$13.00 a dozen. A. W. Yates, 15 Chapman St., Hartford, Ct.

FOR SALE.—Good colonies of bees in ten-frame metal-covered hives at \$8.00. Frank France, Platteville, Wis.

FOR SALE.—Golden Italian queens, untested, 85c; 6 for \$4.75; 12 for \$9.00. Select untested, \$1.00; 6 for \$5.50; 12 for \$10.00. Tested, \$1.25; select tested, \$1.50; extra select tested, \$2.50. No foul brood. No bees for sale. D. T. Gaster, Randleman, R. F. D. No. 2, N. C.

FOR SALE.—Three-banded Italian queens, untested, \$1.00; \$10 a dozen. J. A. Jones & Son, Montgomery, Ala., R. F. D. No. 1, Box 11-A.

FOR SALE.—Bright Italian queens at \$1.00 each, \$10.00 per doz. Ready April 10. Safe arrival guaranteed. T. J. Talley, R. D. No. 4, Greenville, Ala.

FOR SALE.—Three-band Italian queens. Untested queen, \$1.00; six, \$5.50; twelve, \$10.00. Tested queens, \$2.00 each. Robert B. Spicer, Wharton, N. J.

FOR SALE.—Italian queens, select, just hatched, 50c; untested, \$1.00. Especially safe introduction plan free. Order in advance. James McKee, Riverside, Calif.

FOR SALE.—Good Italian queens, tested, \$1.50; untested, \$1.00; 1-lb. package, \$3.00; 2-lb., \$5.00; nuclei, 2-frame, \$4.00; 3-frame, \$5.50. G. W. Moon, 1904 Park Ave., Little Rock, Ark.

FOR SALE.—Three-band Italian queens ready June 1. Untested, each, \$1.00; 12, \$10.00; 100, \$80.00. Satisfaction and safe arrival guaranteed. A. E. Crandall & Sons, Berlin, Conn.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$2.00, 6 for \$7.50. Wm. S. Barnett, Barnetts, Va.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS. BEAUTIFUL and GENTLE. Virgins, \$1.00; mated, \$2.00. C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Extra fine Dr. C. C. Miller queens. Untested \$1.00 each, 6 for \$5.50; 12 for \$10.00; 100 for \$80.00. With 400 to draw from I will be filling orders by return mail. Curd Walker, Queen-breeder, Jellico, R. D. No. 1, Box No. 18, Tenn.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May and June, untested, each, \$2.00; six, \$7.50; doz., \$14.00; tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnetts, Va.

FOR SALE.—Not having time to care for all my bees I am offering at a reduced rate for the balance of the season 60 colonies in 8-frame, standard, mostly new hives, wired combs, tested 3-banded Italian queens. No disease. J. F. Semper, Aikin, Md.

FOR SALE.—Michigan-bred Italian queens. Am now booking orders for Aug. 1st delivery. Three-band only. Untested, 1, \$1.00; 12, \$10.00; 100, \$80.00; tested, \$1.75 each. D. A. Davis, North Detroit, Mich.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, \$1.25; 12 queens, \$14.00. One pound of bees with queen, postpaid, \$6.00. Safe arrival and satisfaction guaranteed. M. Bates, Greenville, R. D. No. 4, Ala.

FOR SALE.—3-band Italian queens from best honey-gathering strains obtainable. Untested queens, \$1.25 each; 6, \$6.50; 12, \$11. Satisfaction guaranteed. W. T. Perdue, Fort Deposit, R. D. No. 1, Ala.

FOR SALE.—Italian queens, golden, and three-banded, bred from best selected stock. Untested, each, \$1.00; 6, \$5.00; 12, \$10.00; select untested, \$1.50 each. Satisfaction guaranteed. G. H. Merrill, Liberty, S. C.

FOR SALE.—Queens of Moore's strain of three-banded leather-colored Italians, one and two years old. All queens sent out suitable for breeders. Price \$2.00 each; 6 for \$10.00. Will also have a limited supply of untested queens at \$1.50 each; 12 for \$15.00. Orders filled in rotation. Satisfaction guaranteed. John Hutchinson, Fife Lake, Mich.

GOLDENS THAT ARE TRUE TO NAME. Untested queens, each, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00.

Garden City Apiaries, San Jose, Calif.

FOR SALE.—A limited number of bees and queens for May delivery from either home apiaries or South Carolina. Safe arrival guaranteed if shipped by express. Parcel post shipments at buyer's risk. We invite correspondence as to details and price. The Deroy Taylor Co., Newark, N. Y.

Victor's three-banded Italian queens of superior quality. All my queens reared by the best method known, from mothers that produced 240 lbs. of surplus honey last season. \$1.00 each straight, from June 1 to Sept. 1.

Julius Victor, Martinsville, N. Y.

ITALIAN QUEENS.—Northern-bred, three banded, highest grade, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price, 1, \$1.00; 12, \$11.00; 50, \$45.00. Send for circular.

J. H. Haughey, Berrien Springs, Mich.

PURE ITALIAN QUEENS. Doolittle and Moore choice stock, also Goldens that are **GOLDEN**. Every queen mated and **LAYING** before being caged. Select untested \$1.50 each. Select tested \$2.50. For large lots write for price. Safe arrival and satisfaction I guarantee.

J. E. Wing, 155 Schiele Ave., San Jose, Calif.

HOLLOPETER'S Italian queens ready in June, untested, one \$1.75; six, \$9.00; July, one, \$1.50; dozen, \$15.00. Quantity price on application, delivery after July 10. These prices guarantee you safe arrival of really high-grade Italian stock, more efficient service and wings clipped when desired.

J. B. Hollopeter, Rockton, Pa.

NORTH CAROLINA BRED Italian queens of Dr. C. C. Miller's strain of three-band Italian bees, gentle and good honey-gatherers. July 1 until Oct. 1, untested, \$1.10 each; \$11.00 per dozen; tested, \$1.60 each; select tested, \$2.25 each. Safe arrival and satisfaction guaranteed.

L. Parker, Benson, R. D. No. 2, N. C.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.

H. G. Quirin, Bellevue, Ohio.

HELP WANTED

HELP WANTED.—Want queen-breeder. State particulars and references in first letter.

Heard & Ellison, Columbus, Miss.

WANTED.—Helper in extracted honey apiaries, four months probably. Much experience unnecessary. State age, salary and particulars in first letter.

G. C. Matthews, Filer, Idaho.

WANTED.—One experienced man, and students as helpers in our large bee business. Good chance to learn. Modern equipment and outfit, including auto truck, located near summer resorts. Write, giving age, height, weight, experience, reference, and wages wanted.

W. A. Latshaw Co., Clarion, Mich.

SITUATIONS WANTED

POSITION WANTED.—Ambitious American young lady desires position where she can learn modern methods in beekeeping. Have had five years' practical work in agriculture, sheep, poultry, pigs, and gardening. Address

Box 1008, Gleanings in Bee Culture.

MISCELLANEOUS.

FOR SALE.—Pure maple syrup of finest quality. Fern Hill Farm, East Fairfield, Vt.

FOR SALE.—Silver Spangled Hamburg eggs, and fine rare old Paganini violin. Elias Fox, Union Center, Wis.

PRINTING SPECIAL.—100 letterheads, 100 billheads, 100 cards, 100 envelopes, \$1.90. Send for samples. Hawthorne Press, Yonkers, N. Y.

FOR SALE.—A canning outfit cheap, used but four times, cook stove size, made of boiler iron, with steam gauge. Northwestern Steel & Iron Works make. G. A. Hall, Clifton Sta., Va.

Wm. A. Rafael, former Manager for the A. I. Root Company at San Francisco, has established a beekeepers' supply business, together with Mr. J. E. Wing, queen-breeder, in the Southern Pacific Building, No. 16 Steuart St., San Francisco, Calif.

E. D. Townsend, the present owner of the *Domestic Beekeeper* bought beekeepers' supplies for the National Beekeepers' Association for several years. He is now buying for the subscribers of the *Domestic Beekeeper* at the same low manufacturers' price. Listen now what he has got up his sleeve: Any GLEANINGS' subscriber buying five dollars' worth of supplies thru the *Domestic Beekeeper* at catalog price, and sending along an extra dollar to pay for a year's subscription to the *Domestic Beekeeper* will get in return a rebate check for a dollar, leaving the year's subscription to the *Domestic Beekeeper* absolutely free to you. Of course, if your order for supplies is larger than five dollars, you will get a correspondingly larger rebate check on your order. One of our subscribers got a rebate check of \$40.00 on his order of supplies last month, March. It was just like getting money from home to him, as he sent us the same money he would have had to pay if he had bought thru the regular dealer in beekeepers' supplies. More and more, close buyers of beekeepers' supplies are investigating the buying facilities of the *Domestic Beekeeper*. A word to the wise should be sufficient to cause you to send your next order for beekeepers' supplies to the Domestic Beekeeper, Northstar, Michigan.

Distributors Root's Goods FOR PENNSYLVANIA

Send for new special catalog featuring the "Simplex" Super, and giving instructions to beginners

Prothero, Bailey & Goodwin DUBOIS PA.

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1919 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

Leininger's Strain of Italians

have stood the test for 35 years. We will offer queens for sale from this famous strain, beginning June, as follows: One untested queen, \$1.50; 6, \$8.00. One tested queen, \$2.00; 6, \$11.00. Select breeders, \$15.00 each.

Fred Leininger & Son, Delphos, O.

Our Food Page—Continued from page 444.

on a well-oiled sheet and bake in a moderate oven.

THOUSAND ISLAND DRESSING.

- 1 cup mayonnaise, $\frac{1}{2}$ dozen stuffed olives,
(Jan. issue) cut small
 $\frac{1}{4}$ cup Chili sauce

Mix the above ingredients and serve at once with any light vegetable salad such as head lettuce or endive. The olives may be omitted.

SALMON OR TUNA FISH PIE.

- 1 can salmon, 1 lb. size 1 cup thin white sauce
2 hard-boiled eggs 1 teaspoon salt
Dash pepper

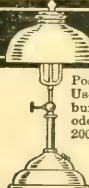
CRUST FOR PIE.

- 1 cup flour 2 teaspoons baking
1 tablespoon shortening powder
 $\frac{1}{2}$ teaspoon salt

Flake the salmon or tuna fish and remove bones and skin, add the hard-boiled eggs sliced, put in earthen or glass baking dish, pour over the white sauce and put in oven to heat while making the crust. Make the ingredients for crust into small biscuits, place over the hot fish and bake in a quick oven until the biscuits are done.

BEES We furnish full colonies of Italian bees in double-walled hives, single-walled hives, and shipping boxes; 3-frame nucleus colonies, and bees by the pound. Tested Italian queen, \$2.00; untested, \$1.50.
I. J. STRINGHAM, GLEN COVE, N. Y.

"Special Crops" A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. \$1.00 per year. Sample copy 10c. Address
Special Crops, Box G, Skaneateles, New York



The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.
THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

FLOUR IS HIGH

Why not live better and save money, too?
Grind your wheat into Best Whole Wheat or Graham Flour. Your doctor knows how healthy these are. Make the BEST Corn Meal, the old-fashioned sort you can't buy at any price nowadays.

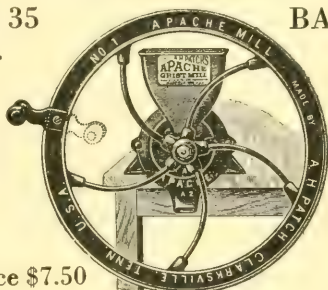
Do all sorts of fine and coarse grinding with an

APACHE MILL

Wt. 35
lbs.

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Price \$7.50

This Mill Makes Best Corn Meal, Graham Flour, Rye Flour, Chops, Hominy, Cracks Peas, Grinds Coffee, Spices, etc. Perfect adjustment for coarse or fine work. Will send Mill prepaid by Express **\$7.50**

APACHE GRIST MILL—Largest capacity, fastest grinding, easiest turning handmill. Does more, lasts longer.

A. H. Patch, Inc., Clarksville, Tenn.
The Blackhawk Corn Sheller Inventor
Invented 1885

Dixie Beekeeper

Bee Journal is now out, covering the whole Dixieland, containing the very best our industry has to offer here. We ask for your subscription one dollar a year. Sample copy free.

Dixie Beekeeper, Waycross, Ga.

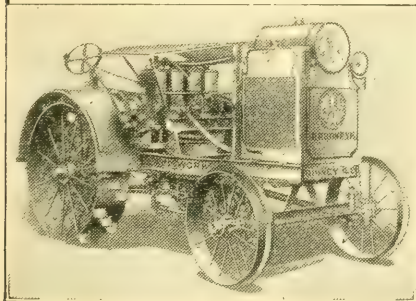
ALLWORK KEROSENE FARM TRACTOR

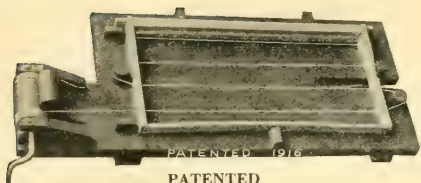
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Strong and Durable**

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PATENTED

Wright's Frame-Wiring Device

Most rapid in use. Saves cost of machine in one day. Tighter wires; no kinks; no sore hands.

G. B. Lewis Company, Watertown, Wisconsin

PRODUCE MORE COMB HONEY

Use The

Lotz 1-Piece Section

THE KIND That DOES NOT BREAK
IN FOLDING

We manufacture millions of sections each year and therefore can fill your needs at all times.

We also carry a complete line of other Bee Supplies. Send us your inquiries and we will be pleased to quote your our best price.

Our 1919 catalog free for the asking

August Lotz Co., Boyd, Wisconsin

Beeswax Wanted

In big and small shipments to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1918. We are paying higher prices than ever for wax. - We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck

The Comb-foundation Specialist

Augusta, Kansas

Established 1899

AROUND THE OFFICE

M.-A.-O.

Praps after you beekeepers have read Hersheiser's article on skunks in this edishun you wont all be stickin up your noses at Philosopher Mel Pritchard for tryin to know how to handle em to best advantage. Hersheiser aint no fool and he dont go off at half cock neither and he says skunks is all fired bad stuff for bees, and serous business. That's jest what a lot of beekeepers is writin Gleanins so Iony Fowls says. The skunks seem to be havin their day everywhere and that day growin bigger. The law here in Ohio protects em jest as in York State. Thereby injurin me both in my apiary and in my fur industry. If theres one thing I love better 'n catchin a good fish its to peel a part of my livin right off some varmit's back. Its some easier 'n workin by the day and then too its a satisfackshun to even up with a varmit. I wish squash bugs was furred good, so I do. I'd skin em afore they was dead. But I started out on skunks and I'm goin to continoo my discourse and try to make myself useful to beekeepers about skunks, for I aint all fool about skunks so I aint. I know somethin about em as well as Mel, and when Doe Phillips at Washinton in charge of apiculture buro of entomology U. States dept. of agriculture Washinton, D. C., wakes up to the cryin need of a skunkologist in apiculture work I'm a candidate, so I am. He'll hear from me and my friends too so he will when the time comes. But I am digressin for I get to thinkin of occupyin that offishal posishun and I cant think of nothin else. Hersheiser and Mel needn't try for it neither so they neednt. To show I have some qualificashuns for the posishun in question I want to tell how I beat the ornery tail pointin low down bee eatin varmits last year—and I aint a foolin about it either. I done it. I took some medium chicken fence wire fully wide enough to extend six or eight inches beyond each side the hive, and about 18 inches the other way, and took a pair of wire cuttin shears and cut back into the wire 8 inches in two places so as to fold back flat the wire mesh for 8 inches at the center jest the width of my hives. Then with staples I fixed sharp sticks onto each inner and outer corner. Then my wire mesh when in place for business extended 8 inches along each side of the hive havin a width of six or eight inches on those sides and 10 inches of wire mesh out in front, part of it in front doubled, all of which was held in place by the sharp stakes about two inches above the ground. It didnt take no time to put this skunk tanglefoot down if I had cut the wire right, and it didnt take but mighty little time to cut the wire to same measurement each one and staple the sharp sticks on the corners. This consummit invenshun could be taken up with nigh to no trouble at all, and you sometimes want to take it up but you can work

around a hive and not take it up if you are the leastwise careful. I'm tellin you the pestiferous skunks dont coddle none to this sort of wire arrangements. That woant what their feet was made for, and they aint no fancy tight wire artists and they aint in no position to paw at a hive or roll bees around on the ground when their feet is messed up in wire and their mental energies is all directed to seem if they cant some ways get out of such a doggoned disconcertin situashun. A couple steel traps right at each front corner of the hive does business too but it stirs up a unpleasantness later that lasts around there all summer, and praps you carry a big part of this unpleasantness home with you where your wife is and you'll find you aint welcome. I pre-soom my anty skunk invenshun is too dog-gone much trouble like most beekeepin short cuts but it works jest the same. Its on the same principal that cattle wont cross a cattle guard of sharp sided sticks placed close together lengthwise. Their feet woant made for no such contrapshun.



Established 1885

It will pay you to get our catalog and order early.

Beekeepers' Supplies

The Kind You Want and The Kind That Bees Need.

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Bees-wax wanted for supplies or cash.

John Nebel & Son Supply Co.

High Hill, Montgomery Co., Mo.

MASON BEE SUPPLY COMPANY

MECHANIC FALLS, MAINE

From 1897 to 1919 the Northeastern Branch of The A. I. Root Company

Prompt and Efficient Service

BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway.

If you have not received 1919 catalog, send name at once.

GOLDEN QUEENS.....

After April 1: Untested, \$1.25 each, 6 for \$7.00, or \$13.00 per dozen, or 50 for \$48; also 3-band untested at same price; tested, \$3.00 each, and my very best at \$5.00 each. Satisfaction.

R. O. Cox, Rt. 4, Greenville, Alabama

Mott's Northern-bred Italian Queens

are hardy, prolific, gentle, and hustlers, therefore resist well disease.

Un'tested, \$1.00 each; \$10.00 for 12.

Select Tested, \$2.00 each.

Virgins, 50c each.

Plans "How to Introduce Queens," and "Increase," 25c.

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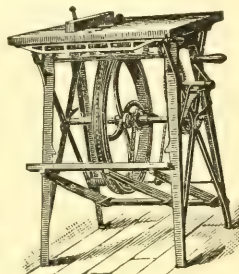
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Untested, 90c; 50 or more, 75c each; select untested, \$1.00; 50 or more, 90c each. Tested, \$1.75 each. Select tested, \$2.00. Virgins, 40c. All queens by return mail or soon.

M. C. BERRY & CO., HAYNEVILLE, ALA., U. S. A.

Talks to Beginners.—Continued from Page 462

expense. The honey that drains out of the cappings falls, of course, into the tub beneath. When one tub is full the barrel can be lifted over an empty one, and the work continued.

Between the uncapping barrel and the outside door should be a generous space for the storing of two sets of supers—the full supers on the one hand and the empty supers on the other.

The Straining Can.

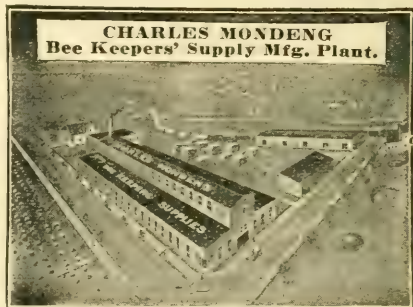
One of the very best arrangements for straining honey is a large cheesecloth bag, the larger the better, up to a point almost as large as the tank itself. This should be tacked to four cross-cleats at the top of the can, and in the bottom of the bag there should be a heavy wire hoop to keep the cloth from floating.

No honey should be drawn off from the tank into cans until the tank itself is nearly full. The impurities in the honey consist of bits of cappings and wax, nearly all of which are lighter than the honey itself, and therefore float to the top. In this way the cloth does not quickly become clogged with the impurities, the honey itself being clarified largely on the gravity principle. Such a strainer will not have to be cleaned for days. If a cloth is merely stretched over the top of the can and the honey poured thru it, it will clog up within an hour or two so that a fresh one will have to be substituted.

There is no time in the whole beekeeping year when a man has such cause to be enthusiastic as when that never-ending, steady hum amounting almost to a roar indicates that the bees are fairly tumbling over themselves in their eagerness to bring in more and more honey; and when that honey, just thrown from the combs, runs down the side of the extractor in a layer almost an inch thick, truly it is a time when it is good to be alive—a time when even the grouchiest pessimist brightens up and becomes enthusiastic.

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All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

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OUTFITS FOR BEGINNERS
IN BEEKEEPING
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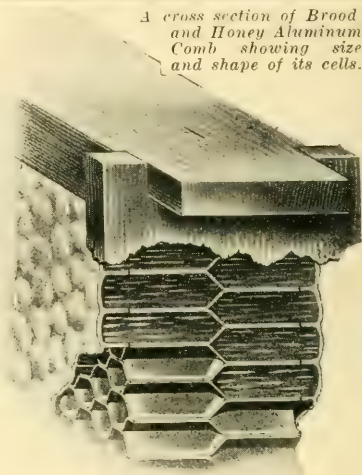
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that is Revolutionizing the
Business of Beekeeping !!

7

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1. Increases Production.
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Aluminum Honeycombs are a thoroly tested and proven entire comb construction, (not a foundation) that increases the production of Honey and controls diseases of bees.

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SECTIONS
SUPERS

KRETCHMER MFG. CO. Dept G. COUNCIL BLUFFS, IA.

Southern
Head-
quarters
for
Italian
Queens



We have increased our queen yard 25 per cent to supply increasing demands for our Italian queens.

	Before June 15			After June 15		
	1	12	50 or more	1	12	50 or more
Untested Italian queens.....	\$1.25	\$13.25	\$1.00 each	\$1.00	\$11.50	\$0.90 each
Tested Italian queens.....	2.00	23.00		1.50	15.00	
Breeders, Italian queens.....	5.00	each, any time.				

We are willing to replace any untested queen which might prove to be mismated. We guarantee safe arrival on all queens we send out. We have never had any foul brood in or near any of our yards. Because we spare neither labor nor expense to produce the best queens for you is why we can not sell cheaper. Let us supply your needs.

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BY PARCEL POST AND EXPRESS OF THE FOLLOWING GOODS:

Friction-top pails 3-, 5-, and 10-lb. sizes.
5 gallon Cans.

1- and 2-story Lewis Beehives in flat, nailed
and painted.

Bingham Smokers and Honey Knives
(including steam heated).

Most sizes of Root's Extractors.

We also promised the program of the State Meeting would be printed in this space this month. However, said program is not yet ready. The following people expect to be with us: E. R. Root, C. P. Dadant, Dr. Phillips, and Kenneth Hawkins—all very prominent men in the Beekeeping World. Special attention is going to be given to the problem of creating a demand for honey. Come and prepare to give this problem your best support. Every one is welcome. Basket lunch at noon. Program with directions of how to reach our place will be mailed on request either to us; O. L. Hersher, Kenmore, N. Y.; or J. H. Cunningham, 303 University Place, Syracuse, N. Y. There will be several demonstrations here on that day that will be bound to interest you. Come and bring your friends.

Comb and extracted-honey supers, with and
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All sizes and weights of Dadant foundation.
Lewis Sections, all standard sizes.

Wire, Nails, Staples, etc.

Queen-excluders, all styles.

All lines of supplies you are likely to need in a hurry.

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TEXAS BRED QUEENS

As our *bee shipping* season will be practically over by June 1st, we will have some extra queens to offer at the following reduced prices. We have shipped thousands of pounds of bees and queens all over the United States and Canada again this season.

	1	6	12	50		1	6	12
Untested	\$1.25	\$6.50	\$11.50	\$40.00	Tested	\$2.00	\$10.50	\$18.50
Select Untested..	1.50	7.50	13.50	48.00	Select Untested..	2.75	15.00	27.00
1-pound package Bees.....	\$2.40	25 or more,	\$2.16 each by Express F. O. B. here					
2-pound package Bees.....	4.25	25 or more,	3.83 each by Express F. O. B. here					
3-pound package Bees.....	6.25	25 or more,	5.62 each by Express F. O. B. here					
1-frame regular Nuclei with 1 pound extra bees.			4.50 each by Express F. O. B. here					
2-frame regular Nuclei with 1 pound extra bees.			6.00 each by Express F. O. B. here					
1-frame regular Nuclei with 2 pound extra bees.			6.00 each by Express F. O. B. here					
2-frame regular Nuclei with no extra bees.....			4.50 each by Express F. O. B. here					
3-frame regular Nuclei with no extra bees.....			6.00 each by Express F. O. B. here					

Add the price of Queen wanted when ordering bees. Circular free giving details.

NUECES COUNTY APIARIES, CALALLEN, TEXAS

QUEENS - ITALIAN - QUEENS

BRED IN ONTARIO FROM DOOLITTLE STOCK



1919 PRICE LIST 1919

Begin Delivery June 15	1	6	12	50
Untested	\$1.00	\$5.50	\$10.00	\$37.50
Select Untested...	1.25	7.00	13.00	50.00



Send us list of your requirements **early** so as to insure date of delivery. We are booking orders now, 25% down. We clip queen's wings free of charge on request.

RUMFORD & FRETZ -:- -:- FOREST, ONTARIO

QUEENS

We guarantee safety from all foul brood disease, because there is not now and never has been any foul brood in our part of the country. Our bees and queens are absolutely free from it. Remember that

LAST YEAR WE REARED 12,348 QUEENS

which we believe to be the world's record among queen-breeders. We could do this only because of the reputation for quality and service that we have established among beekeepers far and wide.

PRICE OF QUEENS.

After June 15th	1	12	50 or more
Untested	\$1.00	\$11.00	\$.90
Select Untested	1.50	15.00	1.30
Tested	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

Prices of Dr. Miller's Queens

After June 15th	1	12	50 or more
Untested	\$1.25	\$13.25	\$1.10
Tested	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

We have a full line of Root's goods and guarantee to fill all orders within three days after receipt and all mail orders the same day received. Try us on sections, foundation, smokers and all small orders by mail. A full line manufactured from Cypress, the Wood Eternal, which we guarantee to please you. Solid one-piece covers made from the best wood in the world, without crack or crevice, at the price of other wood covers. Beeswax wanted.

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Italian Northern-bred queens. Very gentle and hardy. Great workers. Untested, \$1; 6 for \$5. Circular on application. Queens delivered after June 1.

O. E. Tulip, Arlington, Rhode Island
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The genuine "Quality" kind of 3-band Italians—bred strictly for business. Untested \$1.25 each; six, \$6.50; twelve, \$11.50. Select Unt. \$1.50 each; six, \$7.50; twelve, \$13.50. Write for circular.

J. Ivan Banks, Dowelltown, Tenn.

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Your Duty—Do You Know It?

It is to get ready for the coming season and be ready for the first honey flow. This will net you profits. Prepare your bees for a big year and take no chances. Get the best to do with and have the best results.

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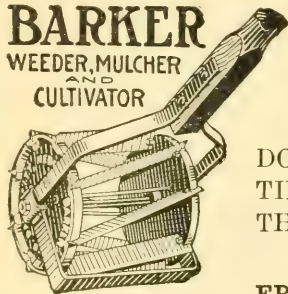
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WEEDER, MULCHER
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Weeds and Mulches In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

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LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.*

A boy can use it. Five sizes. Send today for book, free and postpaid.

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So great was the demand for copies of the A B C & X Y Z of Bee Culture that the new 1917 edition of 15,000 copies is entirely sold out. A supply of books estimated to last a year were completely exhausted in six months.

THE NEW EDITION

is greatly revised and contains 896 pages. It contains the very latest and most up-to-date methods, and is the leading authority of the world on beekeeping. :- :- :- :- :-

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Has the honey flow found you short of supplies? Have the bees exceeded your expectations? Do you need more supplies to harvest your 1919 crop? Then take your problem to a Lewis distributor. Wherever you are a Lewis distributor is near you. Lewis Beeware can be rushed to you "post haste." Then besides the Beeware brand you get Lewis Service.

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Vol. XLVII

AUGUST 1919

No. 8

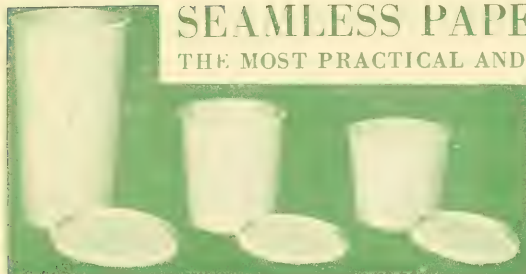


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BECAUSE OF A LATE START IN
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We are taking advantage of the slack season to make up a surplus stock of stan-

Our factory is located in a place for a higher standard of quality in hives, and other honey products in Pacific Coast territory and merits

Our company was incorporated as a corporation in November, and there are still some shares available for investment.

Let us keep you in the market for honey or beeswax, or for any other honey product.

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"Griggs Saves You Freight"

TOLEDO

August is here--the White Clover Honey flow about over. . . Don't get short of sections and foundation--season promises to be good.

Honey Cans and Cases

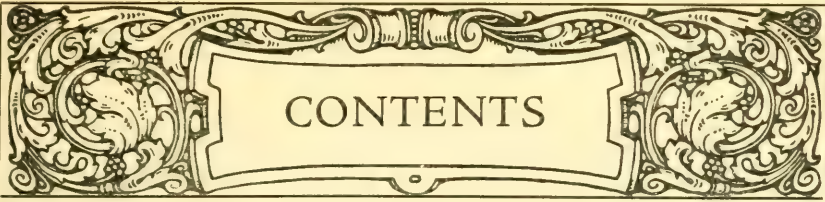
Order these early--a limited number of 2d-hand cans on hand at 75c per case.

Honey--Honey--Honey

We shall be in the market for any quantity, both comb and extracted. . . Mail sample of extracted and state price asked in first letter.

BEESWAX always in demand
--Cash or in trade.

GRIGGS BROTHERS CO.
Dept. No. 25 Toledo, Ohio



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WHY YOU SHOULD BUY NOW! We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointment if you send your order for bee supplies to MUTH NOW.

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LEWIS BEEWARE DADANT'S FOUNDATION ROOT'S SMOKERS, EXTRACTORS, ETC.

Our new 1919 catalog sent for the mere asking. Drop us a card now! **OLD COMBS AND CAPPINGS.** Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

WANTED, COMB HONEY. Comb and Extracted Honey find ready sales here. Tell us what you have. We buy beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city come and see us.

THE FRED W. MUTH COMPANY

Pearl and Walnut Sts.

"The Busy Beemen"

Cincinnati, Ohio

Superior Foundation Excels

READ THE FOLLOWING:

Superior Honey Co., Ogden, Utah.

Cushman, Oregon.

Dear Sirs:—Your foundation arrived O. K. I gave some of it and some of the the other make (in full sheets) to a natural swarm. In three days the bees had Superior Foundation nearly full drawn, and some of the cells at top of frames were two-thirds full of honey, while the other foundation was not over half drawn out. The o'her foundation was purchased this spring. I surely would ask for no better article than *Superior Foundation*, as it is a first-class article. Shall use some more in the next natural swarm and report further results.

Yours respectfully,

June 8th., 1919.

L. W. Derrin.

OUR MACHINES ARE RUNNING TO FULL CAPACITY.
WE GUARANTEE PROMPT SHIPMENT.

Superior Honey Company :- Ogden, Utah
(MANUFACTURERS OF WEED PROCESS FOUNDATION)

HONEY WANTED HONEY

Write us what you have to offer in extracted or comb. If comb, state how packed, graded, and quantity. If extracted, state how put up, mail sample, and quote your lowest price. We will buy unlimited quantities if price and quality are right.

C. H. W. WEBER & COMPANY
2146 CENTRAL AVENUE CINCINNATI, OHIO

HONEY MARKETS

From the majority of reports, honey is moving rather slowly as is to be expected at this time of the year. The New York market, however, is becoming stronger and prices advancing somewhat. On the whole we consider prospects improving.

Crop Report.

Under date of July 24, E. R. Root telegraphed from Washington, D. C., as follows:

"I have seen several hundred crop reports from the Bureau of Crop Estimates, covering the whole of the clover area of the country. Many of the reports are from men I know. These reports are later than ours and show that there will be no shortage of clover honey this year. Probably a lighter crop than last year, and crop little short in Ohio, Indiana, and Illinois but good in other clover States."

U. S. Government Market Reports.

HONEY ARRIVALS, JULY 1-14.

Medina, O.—2,575 lbs. Mass. and 82,920 lbs. Kentucky.

Keokuk, Ia., and Hamilton, Ill.—No arrivals.

SHIPPING POINT INFORMATION.

Los Angeles, Calif.—New crop; supplies light, demand and movement good, market firm, little change in prices. Carloads f. o. b. usual terms. Californians, orange blossom 18-20c; light amber sage 17-19c; light amber alfalfa 15-16c per pound.

San Francisco, Calif.—Old stock; no sales reported. New stock: not yet on market.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the prices at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding two weeks. Prices represent current quotations.)

Chicago.—Receipts light, demand and movement slow, market weak. Sales to jobbers: extracted, white 17-18c, light amber 15-16c per lb. Beeswax: demand and movement good, market firm. Refined, bleached 62-72c, unbleached 50c, unrefined 45-46c.

Philadelphia.—Extracted: approximately 2,700 lbs. freight N. Y. arrived. Beeswax: 100 lbs. freight N. Y. and 200 lbs. freight N. C. arrived. Supplies not cleaning up, market oversupplied. Practically no demand or movement. Sales to jobbers—extracted, California light amber 13-14c per lb.

Denver.—New crop: receipts and movement slow, market steady. Sales to jobbers—Colorado, comb: white, 24-section case \$7.50. Extracted: white 18c per lb. Beeswax: cash to producer on farm—light 38c per lb.

St. Louis.—Supplies light, practically no demand or movement, market weak, very few sales. Sales to jobbers—extracted: Southern amber, per lb., in barrels 11-12c, in cans 13-16c. Beeswax, prime 37½c per lb.

Kansas City.—Approximately 150 packages Missouri arrived. Demand slow, movement draggy, market steady, no change in prices. Sales to jobbers—comb: Missouri No. 1 light, 24-section flat cases \$7.50. Extracted: Colorado No. 1 light, 15c per pound. Beeswax: 35-40c per pound.

Cincinnati.—No arrivals. Extracted: supplies liberal, no demand, market weak, no sales reported. Comb: supplies practically exhausted, no jobbing sales. Beeswax: supplies moderate, demand and movement slow, market steady. Sales to jobbers—pure yellow 40-42c per pound, dark yellow 38c per pound.

Minneapolis.—Supplies very light. Too few sales to establish market.

St. Paul.—Supplies very light. Too few sales to establish market.

New York.—Arrived: 10 barrels from Florida. Imported: 120 barrels from Porto Rico, 225 barrels from Cuba, 135 barrels from West Indies. Exported: 1,000 cases to Sweden, 100 barrels to England, 190 barrels to Italy, 100 cases to Norway, 50 cases

to France and 360 cases to England. Export movement good, local demand and movement very slow, few sales reported. Sales to jobbers—extracted: Porto Rican and Cuban, per gallon \$1.25-1.50. California, white per pound 17-17½c. Beeswax: arrived, 30 tons from Pennsylvania. Imported: 150 bags from West Indies. Demand moderate. Sales to jobbers—light, 41-43c, dark 38-40c per lb.

Cleveland.—Supplies light. Demand and movement slow. Extracted: sales to wholesale confectioners and bakers—Western 60-pound tins white clover mostly 16-18c, some fancy high as 20c per pound. Ohio white clover mostly 20c. Comb: sales to jobbers—Ohio, mostly \$3.75-4.00 per dozen combs. Beeswax: too few sales to establish market.

EXPORTS OF HONEY, JUNE 1-20, 1919.

Total, 476,207 lbs.; to Sweden, 123,340 lbs.; to United Kingdom, 109,067; to Belgium, 63,000; to Netherlands, 42,000; to Switzerland, 30,000; to France, 28,440; to Canada and Newfoundland, 6,665; to Denmark, 6,000; to Norway, 4,400; to all other countries, 63,355 lbs.

Geo. Livingston,
Acting Chief of Bureau.

General Quotations of Wholesalers.

[These firms are asked to quote the wholesale price they make to retailers. Accordingly their prices must be figured at least one profit higher than the price paid the producer. The large dealers do not quote prices in print that they will pay futrely to producers.]

NEW YORK.—We quote from several of the leading honey dealers in New York City, under date of July 16:

"Market improving owing to better export demand and small spot stocks. Extracted honey, white 19-21c; light amber, in cans 15½-21c."

"There is a good supply of honey on spot, principally Cuban, San Domingo, Haiti, and Porto Rico in barrels with a considerable quantity of case goods in addition. There are big inquiries in the market, and a fair business has been done, with the result that prices have been advanced and the future prospects are good. Beeswax is firm but quiet and spot stocks are very small. Extracted honey, light amber in cans 14-15c, in barrels \$1.50; amber in cans 14-15c, in barrels \$1.50. Clean, average yellow beeswax, per lb. 42-43c."

"Demand slow, stocks of amber plentiful, of light moderate. Extracted honey, white 17c; light amber in cans 15; in barrels \$1.25; amber in cans 14, in barrels \$1.10."

"Decidedly stronger with good demand for export. Extracted honey, white 16c; light amber in cans 14c; in barrels 12c; amber in cans 13c, in barrels 11c. Clean, average yellow beeswax, per lb. 42c."

LIVERPOOL.—Since our last report business has been very slow and scarcely any transactions have transpired. Values are nominally unchanged and we therefore repeat them as follows: Australian, in cases, 14-15c per lb.; West Indian and Cuban, 14-16c; Jamaican, 15-16c per lb.; Chilian, Pilot No. 1, good quality, 17½-18½c per lb.; No. 2, 17 1/3c; No. 3, 15½c. There has been a little more activity in beeswax and prices have advanced somewhat. The value of good quality beeswax is about 47 to 48 cents per lb.

Taylor & Co.

Liverpool, England, June 24.

CHICAGO.—Up to this date none of the new crop of comb has come on the market, but it will likely bring 35c per lb. At present there is very little call for extracted and prices are unchanged. There continues to be a good demand for clean beeswax at 40c per lb.

R. A. Burnett & Co.

Chicago, Ill., July 15.

KANSAS CITY.—Market on comb honey very light here, selling around \$7.50 per case, 24-section. Extracted honey moving fairly well. Stock not large, with no new honey on the market. Last year's stock moving at 15c for light amber.

C. C. Clemons Bee Supply Co.

Kansas City, Mo.

ST. LOUIS.—Receipts of comb honey so far very light. Some extracted honey in barrels arriving from the south. Market still very dull. Extracted honey, light amber in cans 14-16c; amber in cans 12-14c, in barrels 12c. Clean, average yellow beeswax, per lb., 37½c. R. Hartmann Produce Co. St. Louis, Mo., July 16.

DENVER.—Bees have in most localities in this State so far made only a living, and prospects for a honey crop are not good at present. Comb honey, none in the market. Extracted honey, white per lb. 22c; light amber, in cans 20c. Clean, average yellow beeswax, per lb. 36 cash, 38c trade.

The Colorado Honey Producers' Ass'n.
Denver, Colo., July 10.

PORTLAND.—There is a fair demand for extracted honey at lowered prices with increased consumption. Large stocks of extracted honey carried over. New comb honey arriving in limited way. Extra fancy \$7.50; fancy \$7.00, No. 1 \$6.50, No. 2 \$6.00. Extracted, white in cans 15c per lb.; light amber 13c per lb.; amber 12c per lb. No beeswax arriving. Look for good crop both comb and extracted.

Pacific Honey Co.
Portland, Ore., June 25.

MONTREAL.—Variety of reports on white clover crop. Some say 1/3 average; others, fair average crop. Prices irregular, very little sold so far, as prices appear too high. Comb honey, extra fancy per case 32c; fancy 30c; No. 1 28c; No. 2 25c. Extracted honey, white per lb. 21c; light amber in cans 19c, in barrels 18c; amber in cans 18c, in barrels 17c.

Gunn, Langlois & Co., Ltd.
Montreal, July 16.

TORONTO.—Prices for new crop have not yet been named and last season's crop is practically exhausted.

Eby-Blain, Limited.
Toronto, Ont., July 16.

CUBA.—Extracted honey, light amber, in barrels \$1.12 per gallon; amber, in barrels \$1.12 per gallon. Clean, average yellow beeswax, per lb. 32c.

Matanzas, Cuba, July 9. Adolpho Marzol.

TEXAS.—Good demand for bulk comb, extracted slackening. Comb honey, fancy, per case, 20c; No. 1, 19½c. Extracted honey, white, per lb. 18c; light amber, in cans 17½c. Clean, average yellow beeswax, per lb. 36c.

J. A. Simmons.
Sabinal, Tex., July 12.

Root Untested Queens

\$2.00 for 1	\$21.60 for 12	\$150.00 for 100
\$11.40 for 6	\$80.00 for 50	Prompt Shipm't

The A. I. Root Co. - Medina, Ohio

Rocky Mountain Honey Producers

We carry a full line of

Honey Containers and Bee Supplies

Two five-gallon Honey Cans in Shipping Cases—Export Cases \$1.55. Domestic cases \$1.45. The cans quoted have a three-inch screw cap. Both cans are strongly made, with heavy partitions. Buy your new extracting outfit of us and save money. We have the most practical Capping Melter for commercial beekeeping. Let us make you a cash offer on your Wax and Honey Crop.

The Foster Honey and Mercantile Co.

Boulder, Colorado

A Big Surprise

(I)N account of having such a run of business early we supposed later we would not have so much, but were surprised at the avalanche of orders received in May and June. During these two months we averaged a week behind on orders. It seems that there are beekeepers yet that do not order hives till the bees give word by swarming that hives are needed. We expect from now on to keep abreast of orders. If foundation and sections are needed we hope to get them to you promptly unless another avalanche comes in July.



F. A. Salisbury
1631 West Genesee Street
Syracuse, N. Y.

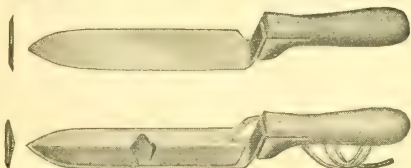
NEW BINGHAM BEE SMOKER



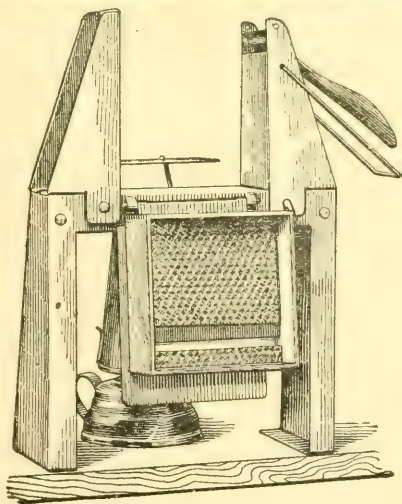
The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey-producers of the World. It is made in four sizes and has a leather bellows.



The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old timers will remember. Our Perfect Grip Cold Handle is one of the improvements.



The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.



The above specialties can be secured from us direct by post or from practically all dealers and manufacturers of supplies, with the exception of the Root Co., and agencies. Our 1919 illustrated catalog and special circulars will be mailed on request.

Tin Honey-packages

- 2 lb. Friction top cans, cases of 24
- 2 lb. Friction top cans, crates of 612
- 2½ lb. Friction top cans, cases of 24
- 2½ lb. Friction top cans, crates of 450
- 5 lb. Friction top pails, cases of 12
- 5 lb. Friction top pails, crates of 100
- 5 lb. Friction top pails, crates of 203
- 10 lb. Friction top pails, cases of 6
- 10 lb. Friction top pails, crates of 113

Write for prices on friction top cans and pails and 60-lb. cans, giving quantity wanted.

A. G. Woodman Company
Grand Rapids, Mich, U. S. A.

TEN PER CENT OFF!

Beekeepers are justly proud of their honey crop. The sections are usually carefully cleaned and the comb surface admired, as the beekeeper wonders what the honey will grade. Then it is cased and sent to the broker. Too many times the broker takes "10 per cent off," because the "cases graded lower than the honey." Honey in Lewis cases always grades best. We have ideal facilities for selecting choice basswood for these cases. You get the benefit. Don't buy your cases until you get our quotation on your needs. It will mean dollars to you.

OUR GUARANTEE

Every article is guaranteed. Your money back if you are not satisfied. If you purchase goods from one of our distributors this same guarantee holds good as we stand back of our product.

LET US HELP YOU TO MAKE GOOD.

Have you been puzzled by some problem in your apiary this year? We welcome the opportunity to help you solve it. Address your inquiries for attention of our bee culture specialist. Get these valuable booklets postpaid at 5c each.

"How to Start Beekeeping."

"How to Manage Bees in Spring."

"How to Prevent Swarming."

"How to Buy Queen Bees."

"How to Feed Bees."

"How to Transfer Bees."

"How to Care For Nuclei."

"How to Unite Bees."

"How to Locate an Apiary."

Send for a
Lewis Beware Catalog
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a Distributor Near
You

G. B. LEWIS CO., WATERTOWN, WIS.

GLEANINGS IN BEE CULTURE

AUGUST, 1919

EDITORIAL

WE HAVE on file a large number of unsatisfied complaints against the Pelican Apiaries Company of



**Complaints
Against
Advertisers.**

New Orleans, La., whose advertisement we carried in April and May of

this year; and against the J. E. Marchant Bee & Honey Company of Columbus, Ga., whose advertisement we carried two years ago. We have written to these parties a number of times, but have failed to get satisfactory replies; and therefore we feel it a duty to advise our readers, before remitting any money with their orders, first to ascertain if these firms can and will fill their orders.



THE EDITOR SAYS it seems good to get home again. While California is beautiful



**Back Home
Again.**

and the climate delightful, good old Ohio with its beautiful green shade

trees and green fields was never more appreciated than now. Much of California is dry and brown, especially in the summer time. All of the East or east of the Mississippi is green.

The editor no more than gets home than up and off he goes again—this time to the North and far East. More anon.

California again—yes, we are expecting to go back for the month of December and perhaps longer. There is also a long and loud call from the great Northwest.



ON ACCOUNT of the shortage of sugar reported elsewhere, we have been conducting



**New Orleans
Molasses for
Feeding Bees.**

some experiments in feeding molasses. We bought a barrel of New Orleans. The stuff

tastes sweet and is sweet; but the bees won't touch it, even when it is smeared all over the frames and the combs. In one case where the bees were trying to rob, we smeared some of this New Orleans molasses

on the front of the hive—presto, good-bye robbers! They can't stand even the smell of it.

There are other brands of table syrups that the bees will take, and in the meantime some of you may be able to get brown sugar. If so, you will find it a very good substitute for granulated white sugar.



THE STORY TOLD in another column about Harry R. Warren will seem to some like a



**Locality—
What It Means.**

fairy tale. Some of the old beekeepers of the country will, perhaps, say that

there is something wrong, or that Warren could secure as good or better results with less labor. All such should remember that localities in the United States vary so much that what works well in one place might not work in another. Furthermore, the editor once believed that bee behavior was the same all over the United States. He is reminded again of the question asked by Josh Billings—"What's the use of knowin' so much when so much you know ain't so?" Or, to put it more exactly, bee behavior is so much modified by locality that one is almost forced to forget what he once knew back in the East and learn his A B C of beekeeping all over again. It takes years for even a good beeman to learn his locality; and this is particularly so in the great West.

Some of the fundamental principles that work well in the East will not work in the West. Take the case of swarming. The rules that apply to that particular bugaboo of the beekeeper of the East and some parts of the West utterly fail in some localities in the West. In some places the bees just will not swarm, apparently; or, to put it more exactly, there is no swarming problem, simply for the reason that the bees do not swarm and do not want to swarm during flows of honey. In the spring the bees will swarm, but not enough to bother the operator, and yet perhaps 50 or 100 miles away the swarming problem is serious.

On account of the varied conditions of the different localities, there is a heavy handicap in migratory beekeeping, because the migratory fellows find they have something

to learn; and, if they do not learn it, they will lose out and that right speedily.

One of the problems that the migratory beekeeper encounters is the behavior of the queens. We will say he moves his bees from Idaho, where the winters are cold, down into some location in southern California. The queens that went thru strenuous service in the northern locality, but which have had only a very short rest, begin breeding again. They may, in fact, lay every month in the year. The result is, their vitality is exhausted by the time of year they ought to be doing heavy duty in egg-laying. The remedy is, of course, to requeen, and that costs money. When he ought to requeen is often the time when he can not get queens.

Again, there are wintering problems in tropical and semi-tropical States just as there are wintering problems in the North. Bees in the Southland require more watchful care than bees in the North; and we have sometimes said that it is more difficult to keep bees in a semi-tropical than in a temperate climate.

Again, the question of bee disease is much worse in semi-tropical than in temperate climates; and this is especially true of European foul brood. While the treatment is essentially the same in both climates, the problem of handling and curing is greater.

The bee-moth proposition is not a serious one in northern climates, for the reason that the cold winters kill off the eggs and larvæ. In semi-tropical climates these pests thrive the year round, and woe betide the combs that are left entirely exposed. Thousands of dollars' worth are wasted every year in warm States for beekeepers who are careless enough to leave their stuff around.

While bee nature is the same in all climates, to a certain extent that same bee nature is modified; and unless the producer modifies his methods of management he will lose out.



AT THIS TIME it is a little premature to forecast what the white-clover crop will be



Honey-crop Conditions.

this season; but reports at present from most of the clover districts, including Wisconsin, Illinois, Indiana, Ohio, Michigan, and parts of Ontario, indicate a decided shortage. In New York the yield will be normal. The season in the Eastern States was full of promise—promise which at this time (July 21) appears not to be fulfilled.

We have learned that there is a shortage in Colorado, but a heavy yield of alfalfa in some of the other alfalfa-growing States. There surely was a shortage of mountain sage and orange in California.

On the other hand, there are vast stocks of honey left over from last season, particularly in Europe. Also there are reports of a large quantity of 1917-18 honey in South America, West Indies, New Zealand, and

Australia. Just how far these left-over stocks will offset the shortage of crops this season, fancied and real, no one can at this time say. The left-over stocks must be subtracted from last year's crop and added to this year's. At the time the armistice was signed there were large quantities of honey ready to go to Europe, but which had to be held.

In the mean time there appears to be a scarcity of sugar, and in many parts of the United States the housewife has been limited to five and even two pounds per family. We have been unable to buy granulated sugar to feed our colonies to build them up for winter, and have been compelled to use brown sugar and molasses, some of which the bees would not touch. Even the brown sugars are hard to get.

Our readers will remember that one of the sugar magnates of the Pacific coast told the editor that there was a million-ton shortage this year. This has been denied; but on the other hand there is the stubborn fact that we cannot get sugar at the present time. The newspapers are saying that there is a shortage of sugar in Europe. Is some one profiteering by storing vast quantities of sugar against a rise in price? We do not know. It looks as if there were a colored gentleman somewhere.

In spite of all these different rumors we are told that in the near future there will be plenty of sugar for everybody. However, it is evident that Uncle Sam appreciates the fact that there is a shortage of sugar, for he has put a temporary ban on shipping American sugar to Europe. If that is the case, is it not probable that Europe, as she did during war times, will turn again to honey, use up her left-over stocks, and then come to the United States for more? We do not know.

The Great War has left a big question mark, and at the present time the honey-producer in the United States is guessing what the market is going to do. That the price has gone up since the beginning of the season is shown by market quotations. Whether it may or may not go higher, no one can say. It is an honest question whether it ought to go higher, because the housewife hesitates to buy honey at present prices, saying that she can use jellies, jams, and molasses instead.

We are all a-guessing, and one guess is as good as another. We probably shall not know until September or possibly October just what is going to happen.

Those who feed their bees for winter would do well to lay in a stock of sugar when they can get it. The Government will not and can not this year divert sugar from other uses to benefit the beekeeper.

Later.—Since the foregoing was written and just as we go to press, our sugar shortage has been relieved, and we are advised that there will be plenty of sugar for every one in from 30 to 60 days.

IN this day and age when great syndicates are owning and operating from two to ten thousand colonies of bees it would be idle to say that this

man or that man is the biggest beekeeper in the United States or the world. Last year, when prices on honey were up to the peak, one concern took \$50,000 worth of honey;

NEVADA COMB-HONEY WIZARD

Man who Took \$22,000 worth of Honey Last Year, and now Expects to Harvest 10 Carloads of Comb Honey

By E. R. Root

honey, hay, and alfalfa seed. They have three big tractors, two big threshing machines, seven automobiles, five of which are two-ton trucks, besides big

teams of horses and agricultural machinery. The entire force at present consists of 25 people. Mr. Warren himself gives his time to the bees while his brother is working the ranch. Such extensive operations could not be carried on without a good foreman; and they have one such in the person of a returned soldier, an experienced beekeeper, by the name of Truxton V. Damon. I hope to show his picture, as well as that of Mr. Warren, in our next issue.

What is the secret of Warren's success? Any man, in order to succeed in any kind of honey production, must be a believer in strong colonies. Mr. Warren is one who not



Fig. 1.—One of Harry R. Warren's apiaries at his home ranch near Yerington. The regular honey flow had not started. As soon as honey comes in with a rush, the working forces of three hives will be turned into one, and at the same time all the supers will be put on one hive. See Figs. 3 and 4.

and large numbers of individual beekeepers in the great West harvested from \$10,000 to \$20,000 worth. At a later time I shall have something to say about these men and their methods.

For the present I propose to jump over into Nevada and tell you something about one of the most extensive producers of comb honey, if not the most extensive, in the United States. He is a wizard at the business. I refer to Harry R. Warren, whose headquarters are located at Reno, Nev., but whose bee operations, centering at Yerington, radiate hundreds of miles in all directions. He is now operating 70 apiaries with an aggregate of nearly 3,000 colonies. He has been making increase and buying combless packages of bees and hiving them on frames of brood and foundation. Indeed, he had the nerve last fall to turn in an order for 3,000 two-pound packages of bees, with queens, for which he was to pay \$15,000. He has already had delivery of about 1,200 packages. These two-pound packages, or "baskets," as he calls them, he figures will more than repay their cost in comb honey.

This man Warren and his brother are operating hundreds of acres of alfalfa for



Fig. 2.—One of the typical Harry Warren comb-honey colonies. The lower brood-nest is nearly square, filled with shallow frames. The space on each side is covered with boards, leaving the supers (eight-frame) directly over the center of the brood. Mr. Warren prefers the shallow brood-nest to either the eight- or ten-frame Langstroth hive. While he operates the ten-frame Langstroth, he uses the eight-frame comb-honey supers exclusively. As there is little or no rain in his locality, no special protection against rain is needed.

only believes, but proves it by his crops, that the average strong colony, good enough for most beekeepers, is hardly half as strong as he would have it. Perhaps most beekeepers would call him a crank, or crazy on the subject; but when it takes a stepladder to lift off the filled supers of comb honey from some of those triple-strong colonies, one is forced to believe that there is method in his madness.

With so many bees located hundreds of miles apart, in 70 yards, it is impossible to give each individual colony all the atten-

brood hatches out, may or may not produce some honey. The one colony with the working force of three queens, one would naturally think, would swarm; but the flow from alfalfa is so strong that swarming is cut out. This enormous force of bees from three queens goes right into the comb-honey supers—they have to, for where else can they go? As the bees fill the supers, empties are added. At the end of the season or at the fourth and last trip the crop is taken off.

It will be apparent that, when the forces of three colonies are thrown into one at the



Fig. 3.—Figs. 3, 4, and 5 represent three different apiaries of Mr. Warren after he had thrown the working forces of three colonies into one. Notice the gaps between the hives. From some of these colonies he took 18 cases of comb honey at \$5.50 per case, and one can of extracted honey, making a total production of \$111 per colony, or as Mr. Warren says, a net profit of \$5.50 per minute for help and manipulation in the harvesting. It should be remembered that this \$111 per colony was the maximum yields, and was also the product of three queens and three colonies. One-third of \$111 would be \$37.00 per colony, which, it will clearly be seen, is not out of the range of possibility.

tion it requires; nor is it necessary, by Mr. Warren's system. He, with his helpers, visits his yards three times in the season at intervals of 30 days, spending five minutes at each hive. At the end of the season a fourth trip is made to remove the honey. The colonies are set off in groups of three. At the approach of the harvest the working forces of all three are thrown into one colony. The average beekeeper, if he owns 3,000 colonies, might think that that was another crazy notion; but let us see. Probably two of the colonies out of the three will be a little below par. Just before the harvest opens he shakes all the bees of the group in front of the strongest hive, giving all the sealed brood he can to the one colony. The rest of the brood from the two hives below par he gives to the colonies that are run for increase; and these later on, when the

beginning of the harvest, there will be a two-thirds reduction in the numerical colony count. In other words, 3,000 colonies will shrink down to 1,000. Perhaps some will argue that the 3,000, each with its individual queen, would produce as much honey; but Mr. Warren says not.

As to whether this plan would work with the average man and in the average locality I have my doubts; but that it works with Mr. Warren in his locality there can be no doubt, if the statement of his men and of the railroad agent who ships the honey can be believed.

By referring to Fig. 2 you will see how Mr. Warren starts out. The Flory brood-chamber, which he prefers nearly square, is shallower than the regular Langstroth hive. As it is wider than the supers, the space on either side is covered with a strip of wood.

Mr. Warren believes that an eight-frame super will be filled out better than a super the full width of the brood-chamber. However, he started with the eight-frame super and continues to use it.

In our next issue I hope to show pictures of Mr. Warren and one of his crews as he goes from yard to yard. At that time I will go into further details as to how he manages with so large a number of bees in 70 different yards. In the meantime do not overlook the fact that there are 25 helpers to take care of the ranches, doing the farm-work as well as the beework.

At the time I was at Mr. Warren's place he was going from yard to yard in a Ford touring car carrying along his helpers. Two of them manipulate the colonies. One keeps the record while Mr. Warren directs what to do with each colony or group of colonies. In this way the master genius of the whole system of apiaries tells what to do with each hive. What that wizard is able to do will be seen by some of the pictures of the piles of comb-honey supers that reach clear above the height of the men so that boxes or stepladders are needed to put on and take off the supers. So high are the piles, indeed, that props are needed to keep them from tipping over. See Figs. 3 and 4. (Dr. Miller, please take notice.)

Do not rush into Nevada, because bees on combs can not be moved into the State. Mr. Warren is connected with the Union Land and Cattle Co. at Reno, and manager of the subsidiary company known as the Union Honey Co. The two companies own and control hundreds of acres of alfalfa. It would be impossible for an outsider to en-

croach on Mr. Warren's bee-ranges, because the whole region is controlled by the Union Land and Cattle Co., and this company has given exclusive rights to the Union Honey Co.

What I have told seems almost like a



Fig. 4.—A view of another of the yards of Mr. Warren manipulated on his system, the same as shown in Fig. 3. The view in the background shows one of his five automobile trucks for carrying supers, filled and unfilled, from yard to yard.

fairly tale; but let me tell you, dear reader, I have seen some of the things I have described, and for the rest I take the testimony of reliable witnesses, Mr. Warren's foreman, and the railroad station agent who ships a large part of the honey. More anon. In the meantime don't ask questions till I have told the whole story.



Fig. 5.—This is still another yard operated on the Warren system. The spaces between the hives, as also shown in 3 and 4, indicate that one or two hives on either side are shaken into one hive. The result speaks for itself.

WHEN left to themselves the bees attend to the rearing of their queens in their own way; but when their owner steps in and takes the reins into his own hands he can so guide the actions of the bees as to attain the end he is striving for, that is, a strain of bees that will gather more honey. Bees in their natural state are not such great storers of honey. Even an improved strain of honey-gatherers will soon return to the common level if left to their own devices for a few years.

But once the beekeeper masters the ins and outs of queen-rearing he has it in his power to increase the honey-gathering qualities of his bees by queen-rearing. A queen-rearing system that goes no further than using all or sundry cells that are discovered at swarming time to replace old queens does not go very far, the only gain being young queens instead of old ones. In fact, it is a bad plan because it tends toward breeding a swarming strain. [Some question.—Editor.]

Queen-breeding implies the constant breeding from the best to replace those be-

MODIFIED PRATT SYSTEM

A Few Modifications Overcome the Objections to the Swarthmore System of Queen-rearing

By W. B. Bray

10 years since the late E. L. Pratt, writing under the name of Swarthmore, made public his methods of queen-rearing. The new system attracted a great deal of attention because of the improvement in appliances and the economy in bees and time. A set of booklets was published, descriptive of the system—namely, "Increase," "Baby Nuclei," "Cell-getting," and "Simplified Queen-rearing." In "Baby Nuclei," Pratt recommended using extremely small nuclei, with combs about the size of sections; but later a larger size was found preferable and the twin mating-box came to be used. Pratt subsequently, in "Simplified Queen-rearing," endorsed this change.

The Swarthmore system has been severely criticised in this country; but in some cases I am sure that the critics have not given it a proper trial. I would point out here that a system that includes grafting of queen-cells requires of the operator both a keen eye and a steady hand. On referring to two of the latest American works by authors of world-wide repute, I find that Pellett's "Profitable Beekeeping" does not even mention the system. "Beekeeping," by Dr. E. F. Phillips, contains a description of it; but the author is rather non-committal as to its merits. He says: "Considerable variation in the success of this method has been reported, and there are numerous phases of this question on which more light is needed. Some strains of bees seem to be poor for this purpose. On the whole, however, when directions are carefully followed, a good number of fine queen-cells will usually be obtained." From this it would appear that the system is not an infallible success.

I bought the books and studied them with such interest that in 1910 I bought the appliances and began using the new methods. Tho my first few attempts proved to be failures I was not satisfied to give it up. Pratt wrote in such a convincing and optimistic manner, and gave such attention to details, that I was sure the fault lay with me. After a little practice I found the secret of success, and with a few modifications I soon had the system working to my satisfaction. For the benefit of any who have been unsuccessful, and those who would like to try their skill at queen-rearing, I will explain where I have adopted or modified the Swarthmore methods.

I use the Swarthmore swarm-box which is made to hold five frames. It has a wire-cloth bottom, and a cleat at each end raises it to give ventilation beneath. The lid has

wise the surrounding bees will gradually but certainly cross with his till he has lost the strain he bought.

It is now somewhat over



Fig. 1.—This twin mating-box is 7½ inches in height, 10 inches in width, and 11 in length.

low the required standard. Every beekeeper has had a colony whose surplus has amazed and delighted him. He would say, "If only all the others were like that, then beekeeping would be a good game." Every beekeeper can and should do his own breeding unless he is prepared to buy queens from a breeding specialist for all his colonies, not only once but from year to year; for other-

two long slots exactly above the second and fourth combs (which are not used). Only three combs are used in it—one in the center and one at each side. The slots are occupied by special bars called cell-bars, which have sixteen 5/16-inch holes in which the wooden cell-cup bases are securely held by the flange. A special machine can be procured to press out the waxen cell cups on these wooden bases; but I prefer to make them by the dipping process. I use wooden

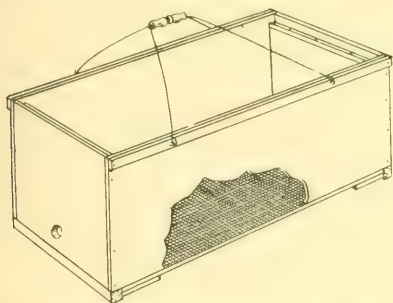


Fig. 2.—Swarthmore swarm box with wire-cloth bottom raised to give ventilation beneath. See lid, Fig. 3.

sticks about the size of a wooden hayrake tooth which I first soak in water and then dip in melted wax, heated to about 160 degrees, to a depth of half an inch. As the wax cools they are dipped again to a lesser depth, and so on for a few more times. The resulting cell has a fine edge, and I find it best to put fresh ones on the wooden cups every time they are used. So much for the apparatus, and now for the method.

Two bars of cell cups are fitted into the lid. Three combs of new unsealed honey, one of which must contain some new pollen, are placed in the box. Great care is necessary to see that no brood nor eggs are in any of these combs. About half a cup of water is sprinkled into one comb. In the middle of a fine morning, when a gentle flow of nectar is on, I take the box to a good colony that has a two-year-old queen and is so strong that it can spare the required bees for a night. Bees from a younger queen will do, but they are not quite so keen on starting cells. I do not wish to get the queen in the box, so I locate her and put her to one side. I push the combs in the swarm-box over to one side, then in the empty space I quickly shake in the bees from five or six well-covered combs, space the three combs again properly so that, when the lid is on, the two rows of cell cups will be above the blank spaces, and finally carry the box to a sheltered spot or to the window in the honey-house.

It is just here that Pratt's directions are incomplete. It is after he has detailed the method of grafting that he says the box must be covered with warm material and the room darkened, the inference being that this was unnecessary till the grafting was finished. As soon as the bees are in the box,

warmth and darkness are important. The bees, being queenless and broodless, cluster on the cell cups, polishing and warming them. Every little while the "queenless roar" will be heard in crescendo and diminuendo, which augurs well for success. When the bees are brought in I put the box on a bottom-board in case I wish to shift it. I lay a cloth over from each side and allow it to touch the ground so as to shut out the light at the bottom of the box, yet far enough away to allow the air to circulate. When I come to graft the cells I am very careful to remove the covering from the top **without letting any light fall underneath at the sides.** The light would cause the bees to rush to the bottom, and it would be some hours before they would again cluster on the cell cups.

I usually leave the bees five or six hours before grafting; but when all the conditions have been favorable I have given them barely half an hour. From my breeder colony I get a comb containing larvæ which are so small they can barely be seen were it not for the food that surrounds them. It requires good eyesight to spot the youngest larvæ, and a steady hand to lift them out on the grafting needle and place them in the cell cups without damaging them. The bees reject any damaged ones. I manage to pick up some food with the larva and de-

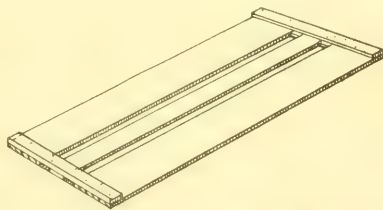


Fig. 3. Lid of swarm box with two long slots for cell bars.

posit it in its new quarters with enough food to give it a comfortable appearance. The first ones are being fed before I have finished, and a contented hum takes the

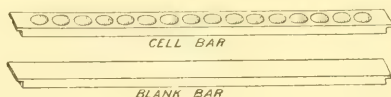


Fig. 4.—These bars fit into slots of swarm-box lid.

place of the queenless roar. I generally get from 25 to 30 cells accepted. In the morning following, it is easy to pick out those which have been accepted. They are nicely rounded and drawn down with a new edge of white wax. Each larva can be seen floating in a plentiful supply of royal jelly. The failures are either empty or started in a half-hearted way.

The queen-cells being started, the next thing is to get them finished and incubated. Pratt gives a method of using a queenless and broodless colony for a few days, after

which the queen and brood are returned, the cells being kept above a queen-excluder till hatching time. I get all my cells finished above queen-excluders with a laying queen below. I select a colony with a good patch of brood in the second story, make sure the queen is below, and put an excluder between the two. I remove a side comb from the super and make a space between two combs of brood containing eggs or unsealed larvæ. This space is for the frame containing the started queen-cells, and I prefer two colonies thus for each batch of cells, about 16 being quite enough for one colony to finish. For convenience in getting at the cells, Pratt used a frame with the top-bar dropped two inches, the cell-bar resting on the lugs and becoming a temporary top-bar. I prefer to sacrifice a little convenience here and have the cell-bar right down among the brood. I believe the cells are better cared for there, and a cold spell will not cause them to be deserted. For this purpose I keep a number of special combs. They have a two-inch strip blank at the bottom, and grooves are cut across each end-bar so that when the cell-bar is inserted there is enough clearance to the bottom-bar to give room for the queen-cells. Under natural conditions queen-cells are practically always reared in a queen-right colony, and I believe that my method is as near the natural one as we can get.

The morning following the grafting, the cells are put out as above, and 10 days afterward they must be attended to, as they are then due to hatch. The bees in the swarm-box are returned to their hive, or they may be used for making nuclei or for increase. It is better to use fresh bees than to use them a second day for more cells. Likewise it is not advisable to use bees from the

same colony continuously, but rather at intervals. Where the cells are being finished there is a likelihood of other cells being built. These must be destroyed, as stray virgins upset the nicest plans. The same colony can be used again later on, after allowing the queen to put more brood above or lifting up two suitable combs.

The queen-cages supplied with the Swarthmore outfit were too small, too many virgins dying in them for want of room. I changed to a larger size (wire both sides), 24 of which fit into an ordinary Langstroth frame. But I seldom cage the cells if I can avoid it, as I find it is more trouble to introduce a virgin, while a ripe cell can be used under any conditions. It is true that the virgins occupy the nuclei for a longer time; but the less fussing and the smaller loss more than compensate. I have used the twin-mating-boxes as twins for some years, but I now prefer them as singles, as too often the queens change sides. I have made my own frames for them with proper top-bars; and to get them filled with honey or brood I put them on a special super over a strong colony. This super is six inches deep, and is divided in two, crosswise, so that it holds ten frames in each end. I draw on these supers for honey at all times. For starting the nuclei I prefer to use sealed brood, as the bees will locate afresh much more readily. Only a ripe queen-cell can be used when starting with brood. Starting with honey only, bees from a swarm are best of all. I allow the first queen to get a good patch of brood well advanced toward sealing before I remove her. This gives the nuclei a good start. They must at all times be kept well supplied with honey, else they are inclined to swarm out, even deserting brood.

Barry's Bay, N. Z.

W. B. Bray.



THE article on page 463 of Gleanings for 1918, describing queen cages in which the bees of the colony to which the queen is to be introduced gain access to the queen a day or two before she is automatically released, brings to mind the old saying, "There is nothing new under the sun," for here is merely an old principle re-discovered.

Page "A," page 464, is so nearly like the Chantry cage, which I illustrated and described, after years of previous use, on page 138 of the "Review" for 1907, that it looks as tho the inventor had at least a hazy memory, subconscious if you will, of seeing the article in question, the idea no doubt coming as a new inspiration,

CAGES WITH CHANTRY FEATURE

*Idea Used Long Ago by Chantry.
Thompson Made Further Application and Improvement*

By E. F. Atwater and J. E. Thompson

This Chantry cage (and I must call the cages there shown Chantry cages) was first shown to the writer by Mr. Chantry, then a practical bee-

keeper of Iowa and South Dakota, in the early spring of 1902 or 1903, and has been extensively used in introducing many hundreds of queens in our apiaries here.

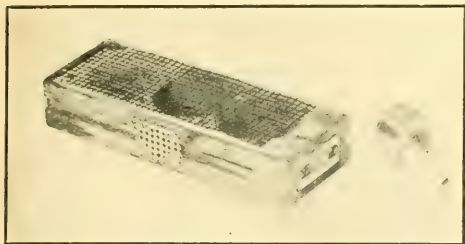
Mr. Chantry found this cage to introduce nearly 100 per cent of the queens successfully, but in our experience, such results have not been reached.

The idea of giving the bees access to the queen thru a piece of queen-excluding metal was even earlier; and, if I am not mistaken, was described in the "Review" many years ago, as the invention of C. W. Costellow. In

this early cage, the release of the queen, or the giving the bees access to her, thru the perforated metal, was not automatic.

Later, on page 342 of the American Bee Journal for 1910, Vincent Asprea of Italy describes a cage embodying the same valuable principle, but, like the Costellow cage, it was not automatic in action, as it required that the hive be opened once or twice after caging the queen therein.

However, the combination of the candy principle with the bees eating their way to



Improved Benton cage with U-shaped tin removed, showing perforated zinc at outer end of passageway.

the queen thru a short passageway, guarded only by a bit of queen-excluding metal, then, a day or two later, after the bees have become acquainted with the new mother, releasing her by eating the candy from a longer, unguarded passageway, is distinctly the invention of Thos. Chantry; and I feel should be so named, unless the principle can be shown to have been used by others at an earlier date. The principle is of real value.

E. F. Atwater.

Meridian, Idaho.

Thompson's Reply to Atwater.

It is impossible that I could have had a hazy memory of anything written in the Beekeepers' Review 12 years ago, since I never saw a copy of that magazine until 1912. I used to keep queens for months by caging them in spiral cages along the top-bars of the frames, and after a few days replacing the tin with a strip of perforated zinc.

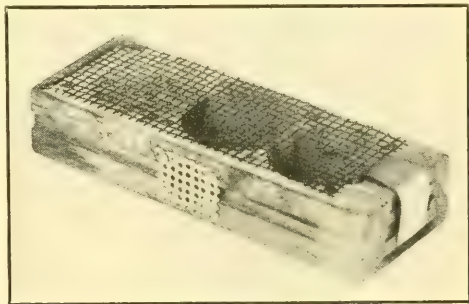
This is how the cages came to be made: There was a colony that refused to accept a cell or a queen in the regular way, so I took one of the caged queens and released her on the top-bars of the frames. She then fanned her wings for joy, and the bees did likewise. She was accepted, and, being fed by the bees, was found laying the next day. So it occurred to me that if a queen is more readily accepted after the bees have mingled with her, why not make an introducing cage to admit the bees before the queen was released? Accordingly, I have since that time used the idea in various cages I have made.

In the article to which Mr. Atwater refers I find this statement: "One fault of the Chantry cage is that occasionally a queen is so stupid that she can not find the way out of the cage when the candy is

gone." The reason for this, I have found, is that the grain of the wood and also the vertical position of the cage prevent her leaving. This difficulty may be overcome by burning out the entrance to the cage and hanging the cage horizontally. Yet an entrance with flat walls is much more satisfactory than one with rounded walls, even when the latter is burned out; for in testing out these cages it has been my experience that over half of the queens refuse to leave thru a cylindrical hole. For this reason I prefer a passageway with four straight walls rather than a cylindrical one.

The Improved Benton Cage.

The principle of these cages I have also applied to the Benton cage. For sending out queens thru the mails the Benton mailing and introducing cage shown in the cut has been tried out and has proved successful. The cylindrical passages at each end of the cage are filled with candy. The shorter one has tacked over it at the outer end a piece of perforated zinc covered with a removable strip of tin bent in the shape of a U. The screen covering the face of the cage is just short enough for the admission of one arm of the U-shaped tin. This arm slips into the cage and covers the inner end of the short passageway, and the outer arm of the U strip covers the perforated zinc at the outer end of the passageway where it is tacked in place. Thus in the shorter passageway both surfaces of the candy are covered so that the bees will be prevented



Same cage with U-shaped tin in place. Perforated tin on side of cage may be removed when putting queen and attendants in cage.

from getting to it while in the mails. For the admission of the queen and bees, a small opening is made in the middle of the side. After the queen and bees are caged, the opening is closed with a piece of tin. On arrival at the apiary, when the queen is ready to be introduced the U tin is removed and the cage placed horizontally on the comb just above the brood, the cage being attached to the comb by means of a nail or bent wire. In a short time the bees will have eaten thru and gotten to the queen, thus allowing the caged bees to be released, while the size of the perfora

tion in the zinc prevents the escape of the queen.

At the opposite end of the cage is a longer passageway, the outer end being covered with a strip of cardboard having a quarter-inch slit thru the middle. This slit allows the bees to gnaw more readily thru the pasteboard to the candy and thus liberate the queen. Instead of the slitted cardboard it would probably answer quite as well to use a piece of cardboard so narrow that the bees could easily get at the candy at either side of the strip.

When filling the cage the hole should be completely filled with the candy so that the candy reaches clear to the pasteboard, touching it, because if the candy is not in contact with the pasteboard, the bees will not gnaw thru; but if the damp candy touches, then some of the sweetness soaks into the paper so the bees more readily gnaw thru.

For the bees to eat thru the candy of the longer passageway requires a longer time than to eat the candy of the shorter passageway; and therefore by the time the queen is allowed to escape thru the long passageway the bees of the colony have

been entering the cage at will thru the perforated zinc, and have thus become so well acquainted with the queen that there is but little danger of their balling her when she finally leaves the cage.

This same plan may be used by the beekeeper on the arrival of an ordinary cage thru the mails. If he has no candy available, and yet wishes to introduce in this way, he should take the cage into the apiary house, leave one end of the cage closed, and over the other end tack a perforated strip, thus allowing the escorts to escape and leave the queen alone in the cage. As soon as the escorts have left the cage, cover the perforated strip with the U-shaped tin and introduce. At the end of 24 hours remove the U-shaped strip and slip between the perforated strip and the cage a piece of newspaper daubed in honey, and replace the cage.

Queens without escort are introduced much easier, for then they are fed by the nurse bees, and are often ready to lay when released; and, if the queen mixes with the bees naturally, she does not become frightened and thus become balled.

Medina, Ohio.

J. E. Thompson.



THE introduction of queens has been one of the serious problems for beekeepers in all times. We have become accustomed to losing a large percentage of queens in introduction and have educated ourselves to expect this and take the heavy loss as a matter of course.

Frequently we hear people say: "I introduced 50 queens with the common mailing cage and lost **only** 10"; or, "I introduced 100 queens by the smoke method and lost **only** 15"; or, "I introduced a large number of queens by the honey-bedaub method and lost **only** 25 per cent." We are reminded of the story of the man, who said: "The way to teach your boy to swim is to just catch the kid and throw him into deep water, and he will swim all right. I taught my seven sons just that way and I lost **only** one out of the seven."

Now, then, if we lose any queens in introduction, we should search for the reason and attempt a remedy, and not be satisfied until we have the hundred-per-cent method.

Upon sending out questionnaires and upon investigating the subject, I have been astonished at the large loss of queens thru introduction. One experienced bee inspector says, "The average loss with all classes of beekeepers is 50 per cent." A man in California informed me that out of twelve purchased he successfully introduced only three.

SAFE INTRODUCTION of QUEENS

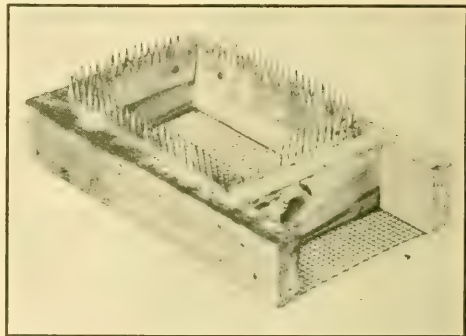
Good Results with Push-in-the-Comb Method. Not the Average Fifty per cent Loss in Introduction

By Jay Smith

Another large honey-producer, who mostly rears his own queens, stated that he lost by introduction fully two-thirds of the queens received thru the mail. Is

it not time to look for better methods of introduction?

In years past when queens could be purchased for 40 cents and upwards the loss



Smith's Push-in-the-comb-cage with saw teeth of heavy tin.

was not so heavy, but more and more people are realizing that a good queen is a valuable asset and should be introduced with greatest care. Very often queens are

accepted after being balled and injured. They will live thru a honey flow and the colony will produce no surplus. Then the queen is superseded. In the past year, parties have reported yields of 200 pounds and upward from the colonies containing the best queens; and from the poorest colonies, nothing. It can be readily seen in that case that the good queens might be worth \$50 each and the poor queens nothing. No matter how good a queen originally, if she is injured in introduction she may be a complete failure.

Methods of queen introduction come and go. In fact many of them come and go a good many times. People are making new discoveries and finding sure methods for introducing queens; but if they read back in some early edition of Langstroth, Quinby, or Doolittle, they will find these same methods were used and discarded 30 or 40 years ago.

In reviewing the older methods and experimenting on all the new or so-called new ones, I find but one method which has stood the test as being practically certain, and this is the method known as the "Push-in-the-comb-age" method. In his book, "Scientific Queen Rearing," Mr. Doolittle says, "To introduce a queen that has come to me from abroad or one which I consider of more than ordinary value from my own apiary, I proceed as follows"; and he then describes the "Push-in-the-comb-age." Mr. Doolittle also states that with this cage "Not one queen in one hundred is balled."

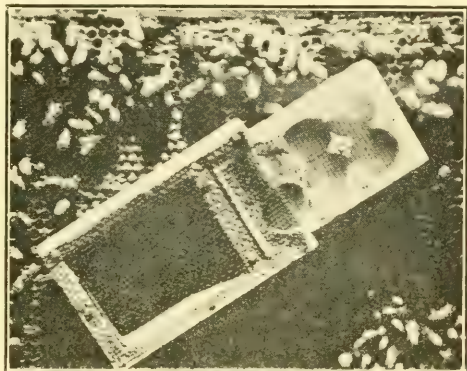
Mr. Hutchinson in "Advanced Beekeeping," recommends this method very highly and the "A B C" says, "Reports of this method of introduction have been uniformly favorable." Others who have used the "Push-in-the-comb-age" give similar reports.

Now the question naturally rises, "Why then is this method not at present universally used?" The answer is not difficult to find. The common "Push-in-the-comb-age" was merely a screen wire with ends bent down and pushed into the comb, and it had a number of drawbacks which made it unpopular. Sometimes in pressing the cage into the comb, the corners were not bee-tight, in which case the queen came out too soon and was killed. Sometimes this cage would come loose, or drop out of the comb, thus releasing the queen too soon. Sometimes the bees would burrow under this wire cage in too short a time; but the greatest drawback of all was the difficulty and inconvenience experienced in getting the queen into this cage.

The cut illustrates a cage that we have used in our apiary in a modified form for several years and up to date has not a single failure to its discredit. It is a "Push-in-the-comb-age" but overcomes the objection to the old "Push-in-the-comb-age." The saw-teeth which are pushed into the comb are made of heavy tin, with the points one-eighth of an inch apart, and these are

made just the length of a worker cell. When this is pressed into the comb, the points of these teeth become firmly embedded into the old cocoons in the bottom of the cells, making it impossible for the bees to gnaw their way under this cage. Being made of heavy tin, the teeth cannot get out of alignment, and consequently their functioning is certain.

To get the queen into this cage is a very simple matter. All that is necessary is to remove the perforated tin on the mailing cage, and drop the mailing cage into the



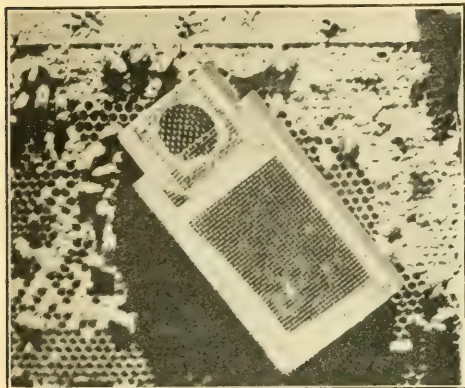
When introducing, shipping cage is inserted into end of Smith's cage as shown in cut.

upper part of the introducing cage, when the holes of the two cages come opposite, and the queen and bees immediately run down into the introducing cage on to the combs. If the six-hole cage, as illustrated in the cut, is used it is a perfect fit. If a three-hole cage is used, a small block of wood is inserted to take up the extra space.

An old black comb should be used as it contains cocoons in the bottom of the cells, so the bees cannot gnaw under. If this can be pushed into the comb over a small patch of brood and honey, the condition is ideal. However, in colonies long queenless or in nuclei very frequently there is no hatching brood, but this seems to work just as well. When the bees and the queen get down on the comb, they at once take the odor of the hive and become a part and parcel of the colony. The colony odor is in the combs.

While I do not recommend any method as sure with laying workers, yet I have introduced a number of queens to laying workers with no loss. This method has several other advantages. You can always tell before you release the queen from the cage, whether or not she is accepted; for, if the bees are kindly disposed toward her, they will not attempt to ball her thru the wire meshes, but will feed her and she will lay eggs, which can be readily seen thru the wire screen. When this is the case, the cage may be pulled out and the queen released at once. In case this cage is taken out too soon and the bees are inclined to

ball the queen, it can be seen at once and the queen recaged; while with the other methods, where the queen is automatically released, if they ball her when the bee-



If the wood in the cage is made a little deeper, the cage may be used with a queen-nursery cage, by inserting a piece of wood to take up the extra space.

keeper is not around she would be killed. One can leave the mailing cage with the cardboard over the candy until the bees gnaw this out and release the queen, or he

can put a wooden plug over the candy and release the queen himself. I do the latter.

This cage works equally well with virgin queens, and they can safely be introduced to full colonies. If the wood in the cage is made a little deeper it will accommodate the regular Queen Nursery cage. In this case the wooden cell cup is taken out of the cage, and the hole it occupied placed over the hole in the "Push-in-the-comb-cage." A small piece of wood takes up the extra space and also covers the candy in the nursery cage. When desired, this wooden plug may be taken out and the bees allowed to eat out the queen; or the beekeeper may release her himself. I have used the last method in introducing virgin queens to nuclei and find it by far the safest and easiest method known.

Another point in its favor for virgin queens is the fact that the virgin queen is in no way injured by remaining in this cage a number of days. If bad weather should come on and queens be delayed in their mating and one has other virgin queens hatching, the second virgin may be confined in this cage until the first one has mated and been removed from the nucleus. Then the wooden block may be removed and the bees allowed to eat out virgin number two.

Vincennes, Ind.



DURING the last ten years summer field meets of beekeepers have come to be quite the fashion. While they do not take the place of winter conventions they perform an important service in the way of actual demonstrations in the apiary. From a social standpoint they are invaluable. The picnic feature stimu-

SUMMER FIELD MEETS

*How they Make Better Beekeepers
and How they Eliminate Bee Dis-
eases*

By E. R. Root

lates not only good feeling but a spirit of co-operation. If the beekeeper receives no other benefit, the knowledge he gets concerning prices and the crops available at a time of year when he is getting ready to sell his crop will more than pay for the cost and time in going to the meet. But this is not all. Mr. Bee-

lates not only good feeling but a spirit of co-operation. If the beekeeper receives no other benefit, the knowledge he gets concerning prices and the



Fig. 1.—Field meet at the home of C. B. Howard, Hayts Corners, N. Y. This was the largest gathering of beekeepers at any field meet I attended a year ago. Between three and four hundred were present from all parts of the State. It was impossible to get a general view; but the picture shows the crowd forming a circle around Dr. Phillips who was then speaking. Beekeepers came from all over the State in automobiles, returning the same day.



Fig. 2.—This shows Geo. H. Rea, the man holding the brood-comb, giving a demonstration at the apiary of M. H. Fairbanks, Homer, N. Y. Mr. Rea was covering the entire State, telling the farmers how to keep bees better and how to clean up bee disease.

keeper by seeing the work done learns the tricks of the trade, and particularly how to eliminate bee disease. No one is too old to learn; and I have yet to attend a field meet when I do not see and hear something worth while.

It was my pleasure to attend a number

of field meets a year ago this summer, not only in Michigan, mention of which has already been made, but in New York, which has as many up-to-date beekeepers to the township as any State except California.

One large meet was at East Aurora, N. Y., under the auspices of the Western New



Fig. 3.—This is a general view of the beekeepers present at the Canastota meet. Chas. H. Stewart, State bee inspector, is shown at the extreme left, middle row, sitting down. Next to him is Mr. Clark, of the firm of Doolittle & Clark; then following in order are S. D. House, Geo. H. Rea, Dr. E. F. Phillips, C. B. Howard, and A. H. Root.

York Honey Producers' Association, of which James H. Sprout of Lockport, N. Y., is president, and Howard Myers secretary. There were between 200 and 300 who sat down at the basket luncheon.



Fig. 4.—As one rides over the country he will see these signs on the trees in front of the homes of prosperous farmers—prosperous because the owner of the farm is a member of the Farm Bureau, which sends out extension workers who make it their business to inspect the farms, offering suggestions in regard to the treatment of the soil and how to get the most out of it.

The next meet was under the auspices of the State organization and was held at the home of C. B. Howard, near Hayts Corners, N. Y., at the foot of and between the two

lakes of Seneca and Cayuga. Mr. Howard is one of the best beekeepers in the State, president of the New York State Association of Beekeepers' Societies, and owner of five or six hundred colonies of bees.

Another meet was that held at Canastota, at the home of A. H. Root, brother of L. C. Root, author of *Quinby's New Beekeeping*. The attendance was not as large as at the other field meet; but from the standpoint of enthusiasm it was the equal of any of them.

The next field meet was at the home of M. H. Fairbanks, Homer, N. Y., Aug. 5. This was an extension workers' meeting. Fig. 2 shows Geo. H. Rea, then of the Bureau of Entomology, Washington, and formerly bee extension worker in North Carolina, and State bee inspector of Pennsylvania, but at that time extension worker in New York.

The next series of field meets, Dr. Phillips and Mr. Rea helping, was in Cortland Co., with the regular field bee extension worker, Allen S. Merchant of Cortland Co., N. Y. Mr. Merchant kindly carried us thru the country, among the farmer beekeepers where foul brood had been reported.

Fig. 4 shows that the State of New York is welcoming the Farm Bureau extension workers who take up general agriculture, and, indirectly, bee culture. As soon as a farmer becomes a member of the Bureau a tag is fastened in a conspicuous place on the farm. Under the regular Leaver law the extension workers are performing wonders. Every county in every State in the Union should have an extension worker.

Before leaving the State I must show John Demuth's apiary at Pembroke, N. Y. (See Fig. 5.)

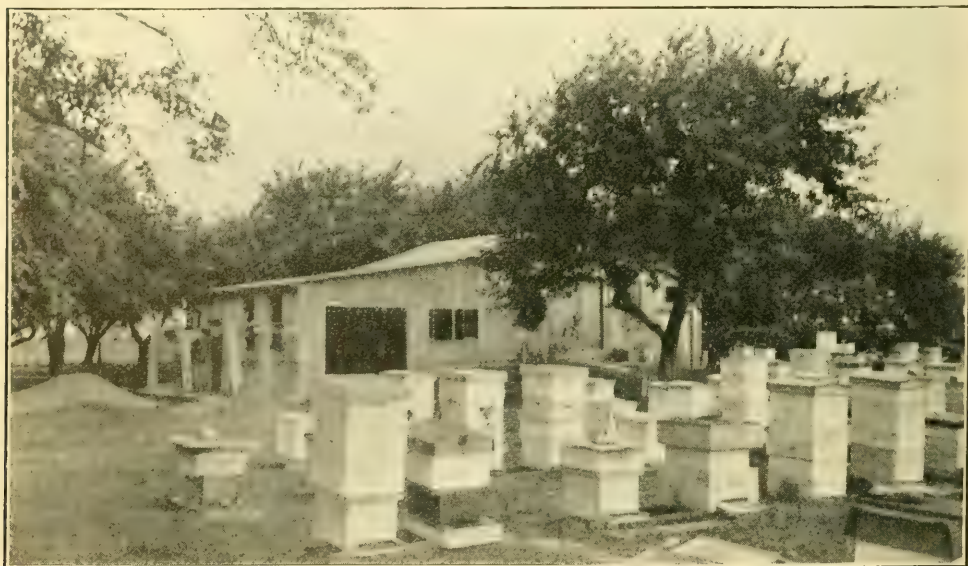


Fig. 5.—This gives a view of one of the pretty yards owned by John Demuth, a leading beekeeper of Northwestern New York, located at Pembroke. His specialty is comb honey. He is one of the few who needs no extension worker or bee inspector because he is clear up to date.



ANNE LESTER AND DADDY LOWE, BEEKEEPERS



By Grace Allen—Chapter VII

"TRUE taste is forever growing, learning, reading, worshiping, laying its hand upon its mouth because it is astonished, casting its shoes from off its feet because it finds all ground holy—" Daddy Lowe was reading aloud, to the clicking—then resting—of Mrs. Lowe's knitting needles; while Anne, big-eyed with the intensity of her listening, sat with her knitting in her lap, looking off across the world. The old man read on.

"And it finds whereof to feed, and whereby to grow, in all things; for there is that to be seen in every street and lane of every city—that to be felt and found in every human heart and countenance, that to be loved in every roadside weed and moss-grown wall, which, in the hands of faithful men, may convey emotions of glory and sublimity continual and exalted."

Daddy Lowe laid down his beloved Ruskin and the three sat silent. The early August day hung hot and heavy.

"I wonder what Ruskin would have done if he had lived during this war," Anne mused presently.

"He would have hated it," the old man answered. "But if he had been young, he would have fought, I think. And if he had been old, he would have written things to feed men's souls."

Again they were silent, there in the deep shade of the maples.

"Daddy Lowe," Anne began again, "are all beekeepers like you?"

"Bless you, no. Are all young girls like you?"

"Yes, I think so—just about. Only I like books more than most of them—and parties less. And country more and cities less."

"And bees more and beaux less," suggested Mr. Lowe.

"And old people more and young people less," smiled Mrs. Lowe.

"Oh, I love everybody," Anne declared, "almost. And you two most of all, after Robert. But I was thinking what a nice kind of work beekeeping is for nice men like Daddy Lowe, because it doesn't take every minute every day. Hours like this are so lovely."

"I have friends who say this way of living hasn't made me rich," the old beekeeper said quietly.

"Well, it has," flamed Anne, "rich inside. Why—some people are so poor inside that their ideals are all ragged and worn. But you, you are rich, rich, rich."

"One thing we have to be careful about, Anne," Mr. Lowe said presently. "Those of us who care a great deal about books and quiet hours have much the same problem as the more energetic ambitious people have, that is, to maintain a poise, not too much

work nor too much leisure, but a quiet balance between the two extremes."

"Well, you can certainly work hard," Anne approved. "And you can get a lot out of leisure too."

"You flatter me," he smiled, adding, "It's time I started showing off my working talents again. Anyone want to join the vain display?"

Before Anne could answer, she was waving a friendly hand to a passing car, as it crossed the one open space where the road was visible. "Theodore," she explained. Then, laughing, "He goes right by when I'm in polite clothes, and drives relentlessly in when I'm working in the yard."

"Then he'll likely drive in tomorrow," said Mr. Lowe.

And so he did. But only for a few minutes. He was taking Miss Katherine Clark to the train for a visit to friends in the city, and she wanted to say good-bye to Anne, to whom she had taken a great liking.

"I'm going to have such a good time!" she chirped in delighted anticipation. "I do love the city so." She turned to Anne. "Do you really like all this?" she demanded, with a puzzled look at the work clothes and the stained hands and the moist face of Anne.

"Ask Theodore," laughed Anne.

"She thinks she does," he affirmed. "Can't we persuade her she doesn't?"

Katherine pointed an accusing finger at him. "Pluck the farming beam out of your own eye before trying to dig the beekeeping mote out of hers!" Then to Anne, "I've found out he doesn't like farming a bit. Even Father says he ought to go back to the city. But he won't—for some secret reason. Patriotism, I suppose."

"No telling," murmured Anne. The car started out.

"But he's coming in Thursday to take me riding and to a concert," the girl leaned out to call back. "Isn't that nice of him?"

"Lovely," agreed Anne, waving her good-byes and good wishes to the happy girl and a very red and very miserable Theodore. She watched quietly till they were out of sight, then turned back to her beekeeper friend and teacher.

"What had you started to say, Daddy Lowe?" she asked. "Something about planning right now for next season's crop."

With the fine courtesy that makes no uninvited comments, he again started to explain the next work to be done.

"You see, Anne, the only way we can get a maximum crop next summer is to have every colony in as perfect condition as possible when that flow comes. That calls for good wintering. That requires a lot of young bees this fall. To get them we need

a young queen in each hive. That's our next job."

Anne looked down the rows of hives. "It sounds like a big one," she sighed.

At the words Mr. Lowe sat down on a hive and looked at Anne gravely. "It does," he answered, "too big."

"To you, too?" surprised.

"For another reason, Anne. I don't like leaving Mother alone much these days. I believe—" a moment's steady consideration—"yes, I believe I'll let the requeening go this year, after all. Our queens are only a year old, anyway,—and there are other things much more important than bees."

From the sudden sadness of his look, Anne turned her eyes. Something was there too much his very own to be watched. But after a minute she looked swiftly back.

"Daddy Lowe," she said in tender impulsiveness, "let me re-queen the yard! You stay at the house—with her."

There was protest, and insistence, but in the end Anne seemed to win. "Only," she conditioned, "please don't ask me to use artificial cell cups, and graft larvæ and things like that. I'm no grafter," with a steadfast attempt at gayety.

"I thought you'd enjoy that part," he said. "It's really fascinating."

"Maybe, some day. But not yet. I'm too green. Why couldn't I just kill all the queens—Oh dear, that's honestly what I hate worst of all!—and let each colony raise its own new queen?"

"You could."

"Your tone says, **But** something. **But** what? Would it leave them queenless too long?"

"It wouldn't be downright tragic, but it would be a little too long—a little too late. Three weeks to get a new laying queen, three more before any of her progeny emerge, and two more before they are flying. I don't mind a break like that in the latter part of the main flow or immediately after it. But for August, brood-rearing is better than queenlessness."

Anne sighed. "I thought that would be such a nice simple way."

"There is another objection to it. About a fourth of the yard this season produced less than the yard average. Don't you think—"

"Oh, of course! We've got to requeen them from our best producers."

"Well, if you really insist on tackling this job—"

"I really do."

"Then we'll compromise by requeening only those poor producers. You have mentioned methods you don't want to use—is there any especial one you do want to use?"

"There are so many ways to do everything a beginner can hardly decide which is best. It must take lots of experience to get the most out of reading."

"It takes lots of reading to get the most out of experience, too," he replied.

"But lately I read all about putting a comb of eggs flat across the top of a hive, and I thought that sounded like a cutie sort of plan. Did you ever try it?"

"Yes. That will do. I leave it to you," and he turned to go.

"Oh!" a little frightened. "You better find out first if I know how."

The man smiled. "If you don't, you'll either read or ask. You are a very conscientious young lady. But say your lesson over, if you'd rather."

"First," she began radiantly, dropping down on the grass in the shade, and patting the bench beside her for the old man to be seated too, "I'll pick for a breeder the queen whose workers gave the most honey, that is, if they are good-looking and well-mannered. I'll give them a nice empty worker comb right where the queen will lay in it. Then I'll choose some other big strong colony for the cell-builders, and make them—" tapping fingertips—"queenless—broodless—eggless. Then I'll take the comb of eggs from the breeder and scrape out the alternating rows of cells, each way, till—"

"Do that if you wish," interrupted Mr. Lowe. "Otherwise you needn't."

Anne opened her eyes in surprised protest. "I thought I had to, but anyway I wish to—I like the checkerboard picture in my mind. Then I'll lay it flat, on sticks or something, an inch or two above the top-bars of the cell-building colony. I'll put a shallow super on and lay a sack over the flat comb and down to the edges of the brood-chamber. Then up will come the nurse bees—poor little things with nothing down there to coddle—and before long there'll be royal jelly—Oh, do you think I had better feed them a little every day?"

"I don't think you need to—tho it helps. We're cutting down the work right now. Use your own judgment."

"That's flattering, but embarrassing. Perhaps it's educative, too! Well, that's all. Except when the young queens are most ready to come out, I'll have to execute the undesirable queens we want to get rid of, and give each colony a cell—in a protector, I suppose. Or will I have to put them in nuclei first?"

"Put the ripe cells directly into the colonies. Then make up nuclei for the cells that are left over; that will give you queens to replace any that don't get accepted or mated." The old man rose. "It's in your hands, Anne. And you are a great comfort, child."

Anne rose too. "Daddy Lowe," she said in her wistful young way, "I do hope Mrs. Lowe will get stronger—and that she'll get a letter soon from her soldier boy. Surely one will come soon. And perhaps that will help."

"Perhaps," he answered gently. "Perhaps."

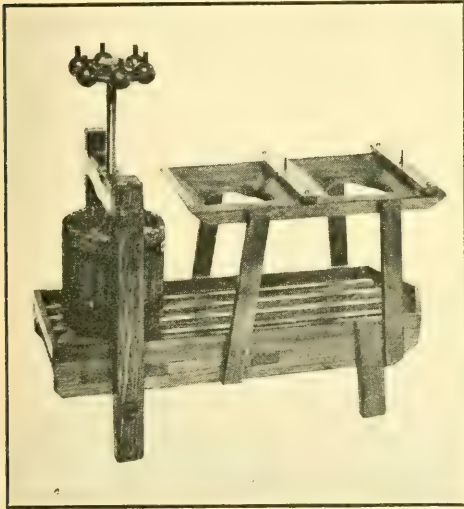


SEASONABLE SUGGESTIONS

Management in Localities both With and Without a Fall Honey Flow

Standing at the threshold of August, what apicultural memories it brings! The season for the white honey from clover, raspberry, thistle, and basswood has passed, and with it the recollections of a season where the supers did not yield enough honey to wet the extractor; and, as we are most liable to remember extremes, my thoughts turn also to seasons of bumper crops when hard work and the strain of oversight have made it a pleasure to know that there is no more honey to extract.

By August 1 the white-honey harvest in the northern States and in Ontario and Quebec should have been reaped, and the year's



The Bedell capping press that was described by Mr. Holtermann in the July issue.

operations, so far as results are concerned, should be at an end. The time has come for laying the foundation for the success of another year's operations—at least so far as that success is under our control (which it is to a greater extent than many realize).

Dr. Phillips well said at Cornell University last winter that there are many who are good beekeepers and operators during the season when bees are active, but who fall down woefully in their management when the bees are not active. I have to admit the truth of his assertion.

Where there is no fall flow (and such a district is my own at present) all colonies should be examined to find out how they are supplied with stores, and to see if they

have sufficient until feeding for winter. Owing to the tendency to rob, this examination may have to be confined to weighing or lifting them; and, if necessary, ample stores should be provided. Within the last few days just at the close of the clover flow (which, owing to drouth, closed early), I pointed out to the students with me how, time and again, colonies, altho having a brood-chamber of 12 Langstroth frames, had not five pounds of honey in them. Such colonies are among the very best. They often have the most surplus on them, and yet are so poorly provided with stores that they would starve to death before winter feeding, which should not be done before late September or early October. In years gone by I have neglected this, and thereby lost some of my best colonies. (I take it for granted that a beekeeper generally extracts what honey there is above the queen-excluder. No other system is very practical.) Having found colonies that lack stores, their needs should be supplied in the usual manner by feeding not less than 10 pounds of sugar syrup as soon as there has hatched a sufficient number of young bees to give room for storing the syrup. The syrup should be put on the hive just before dark, and the usual precautions be observed against robbing.

With modern methods of management and the manipulation of the brood-chamber, breaking down queen-cells, sometimes pinching the bees (perhaps the queen), there is greater likelihood of queenless colonies. In any case there may be queenless colonies.

Our next work should be to see that every colony has a young queen. This is at a time when no harm results from the absence of a laying queen for two weeks. No harvest is ahead, and the colony loses no time thru rearing its own queen; for when the new queen begins to lay she more than recovers the lost time thru her youthful activity. Also, if requeened now with young bees the colonies will be less likely to be queenless in the spring, and there will be less need of stimulation from natural and artificial sources.

August is far too early to provide stores for winter; nor with normal colonies would I advise stimulative feeding at this time. Nature balances itself perfectly in this respect. Shall I say nature is its own defense and its own preserver? No gathering of honey and pollen, no vitality is lost by the bee, and she remains young. With honey-gathering, vitality is lost and the bees become old. While the bees are becoming old, the queen is laying eggs, which results in young and vigorous bees to take the place of the worn-out and dying bees.

In support of my advice in regard to

FROM THE FIELD OF EXPERIENCE

stimulative feeding, I know of several cases where, owing to oversight and neglect, queens were confined in a cage in the hive in June until the brooding season had passed. The bees were in a section where there was no fall flow, and the bees did not wear themselves out, and not only wintered with success but were normal colonies the following spring.

Dr. Phillips and Mr. Demuth, of Washington, have said that three pounds of fairly young bees is sufficient to take a colony thru the winter and have it in good condition the following spring so far as numerical strength is concerned. I am quite prepared to accept that statement; and yet I have known where four or five Langstroth combs well covered with young bees, and having a first-class young queen, wintered well when properly fed and protected with packing, and in an outside temperature of 20 degrees below zero; and they were first-class colonies in the apiary the following season.

If I could devise a method by means of which I could, at the close of the honey flow, get rid of all the old bees and even the half-worn-out ones, I would do so. Stores would be saved until winter and during winter, and many bees which would have to be carried out by their sisters could be brimstoned in a moment and be saved greater hardships when coming to a normal end. When I have such a subject in mind I feel disposed to envy some one who has the time and means from the Government to experiment. It may be that bees could be carried in their hives a restricted distance, at which the long and distant rangers would return to the old location and the younger would be out of the previous area of flight. Then

the brood-chamber full of brood would all be saved for the new or youthful colony.

The entrances to the hives should be reduced when the honey flow closes. The entrances should be in proportion to the strength of the colonies, but much smaller entrances than are desirable during the honey flow and the swarming season.

Large and contented colonies are the foundation of large crops of honey. For this reason we seek to make it the will of the colony not to swarm; but there is no reason why the division of this large colony should not take place after the object sought by such holding together has been attained. Where one has in possession strong colonies with large (such as 12-frame Langstroth) brood-chambers, with two or three extracting-supers of honey and bees, there is no reason why two good colonies can not be obtained. There should be almost, or even quite, five combs, largely of brood, some pollen, and a little honey which can be added to by feeding 10 or 20 pounds of syrup. The division can be successfully performed by splitting the colony and combs down the middle, between the sixth and seventh combs. The half with no queen should be given a laying queen. It is better, but not necessary, to move the new colony. The young bees and those yet to emerge from the cells will remain on the new stand. Put the old queen with the bees on the new stand, and fewer bees will return. I need not mention the well-known device of putting a board against the entrance to draw the attention of the bees to the change in location.

Where there is a fall flow from such sources as buckwheat, goldenrod, boneset, aster, and the like, there is no better time



Attractive backyard apiary of L. J. White, Michigan.

FROM THE FIELD OF EXPERIENCE

to draw out foundation than in the autumn. The August work in such localities will be much the same, as just described, in regard to requeening and the time and manner of increase; but the increase will have to be at the expense of a portion of the honey crop.

R. F. Holtermann.

Brantford, Ont., Canada.

A LATE START IN BEEKEEPING

But a Real Success Achieved that Brought Both Money and Pleasure

It is not in the spirit of boasting that I present this brief narration of a late beginner's success with bees, but rather to prove that age and entire ignorance of methods form no barrier to entering the field of beekeeping with good chances of ultimate success.

Ten years ago, at the age of 62, I started beekeeping. Meeting a neighbor one morning he proposed to exchange two colonies of bees with me for a load of hay. I accepted his offer, and that day I became a beekeeper. I was, perhaps, as ignorant in the mysteries of the art as one could well be. In fact, I could not even tell a drone from a worker nor a super from the bottom-board. But being "in it" I resolved to succeed.

My first season resulted in increase of only one colony and no surplus honey, owing to absolute unpreparedness. The end of the second season of my venture showed me satisfactory gain, having secured some surplus honey and four colonies of increase. The second winter found me studying and preparing for the following season. My work was chiefly making hives and supers, wiring Hoffman frames, and filling supers with sections all ready for the hives. I early learned the value of using full sheets of foundation for both brood-frames and sections. The third season's crop more than repaid all previous expenses, and from that date on the business grew and became successful beyond my highest expectations.

The season of 1917, however, proved to be my banner year, and stamped success in big letters on my late-in-life endeavor with bees. At the beginning of that season I had on hand about 40 hives filled with frames of empty combs, or foundation, and 135 supers ready, too, with full sheets of foundation in every section. I commenced outside operations early by putting supers of empty comb and unfinished sections of the previous year on my strongest colonies during the fruit-bloom period. I allowed the full natural increase except that I raised the front of each hive $\frac{3}{4}$ inch in hot weather to overcome partially the swarming inclination.

My plan has been to allow all swarming and to double up the swarms as much as

possible, thus making new strong colonies that will in a few days jump right up into the supers and fill them with astonishing rapidity. Any old colony, apparently inactive or lacking in numbers or vigor, I treat to a new swarm; and to prevent fighting I give each several thoro smokings and then introduce the new swarm *en masse* from the top of the hive right on to the brood-frames, and never from the entrance. The new combination will, in a little while, work with the vigor of any new swarm.

Inspired, perhaps, to greater action by the voice of the press, urging every person to help in the universal need of more produc-



A carload of honey at Delphos, Ohio, and the men who produced it. From left to right are Walter Leininger, J. H. Allemeir, Fird Schimmoller, John Leininger, Fred Leininger, B. I. Solomon.

tion, I labored with determination both in beekeeping and my old-time line of gardening, and I believe I have added the cap-sheaf to my lifework industrially. My 45 colonies increased by swarming to 90 during the season, and my entire production from the bees netted me \$496.20, and from my bees and garden \$670. This I accomplished alone and unaided for the season of 1917, at the age of 72.

Altho starting late in life, and perfectly ignorant of bees and bee management, I have found pleasure and profit with them; and were I young today I would start with bees for a life occupation. E. E. Colien.

Manana, Wis.

ONE OF THE SIX BEST

A Failure in Colorado but a Success in Utah

Utah may boast of one of the six best beekeepers in the United States, according to no less an authority than Dr. E. F. Phillips of the United States Department of Agriculture. Utah people know this honey-producer as the man who took first prize for comb honey at the State Fair. Colorado knows him as a beekeeper they hated to see leaving the State, and, thanks to his success in producing honey, Hyrum, where he

lives, is getting a reputation for honey almost equal to that of Hymettus.

His name is Gill, and any man in Utah who wants to know anything about bees will do well to visit him, see his apiary scattered thru his orchard on the warm, wind-protected western slope and hear his honeyed words about the profitable little insects that work so well. He knows everything about them from Maeterlinck to markets.

"Northern Utah," he begins, "has wonderful bee pasturage with its alfalfa fields and irrigation canals lined with sweet clover. When I came here eight years ago I was much impressed with it. I had been

living in Longmont, the bee center of Colorado, and three years of drought and grasshoppers had driven me to desperation. There were 11 carloads of us including bees, emigrants, and household goods, that left Longmont together. Some went to Idaho, some to Montana, and I was the only one that came to Utah. And I am glad I came. As I say, Cache Valley up in northern Utah looked to me like a good bee country, but until recently it has been over-pastured. The bees in the fall were in poor shape. It was a hard winter for them. Everyone lost some colonies. I had 220 left out of 800. One man lost 1,100. Another man, one of the largest honey-producers in the United States, lost all of 2,200 colonies except 80, sold those in disgust and retired to California. I wintered mine in the cellar, tho ordinarily an outdoor pack is enough in Utah, if there is protection from windbreaks. Summer honey-gathering conditions are good here. Alfalfa and sweet clover furnish abundant honey. Logwood is the best yielder of nectar and linden trees come next. That is why I'd like to see more of the latter growing in Utah. But alfalfa is wonderful. I always have a colony of bees sitting on scales and I look at the balances morning and night. During the alfalfa month of August the scales some days regis-

ter an increase of as high as eleven pounds of honey.

"I learned to love bees as a boy in Wisconsin. There I used to go out treeing wild bees with an old bee-hunter who found my eyes better than his. It was fascinating sport, and when I got married I began keeping a few colonies. Then when I moved to Colorado I made it my main business and had always from 1,000 to 1,500 colonies. There is more money to be made in extracted honey, but I love to work with comb honey. It is neater, more expert work. Anyone with intelligence enough to turn a grindstone can produce extracted honey, but

it takes an artist, a born beeman, to handle bees for comb honey. You have to crowd them, they swarm more excessively, and you sell the whole product of the bee. My wife is a great help to me in this work, and we work together so calmly that the bees take us right into the family and never sting us. Some old writers say that bees hate bad odors, such as garlic and human perspiration; but what they hate most is nervous, jerky, excitable, swearing people. It was Maeterlinck's serene temperament before the war that made him watch the bees so carefully and write about them so well. I have his book and it is absolutely accurate, tho there are many poetical wrappings about his facts.

"As for markets, you can always sell honey. It is as

much a staple as wheat. I have a big local market among the cattlemen of Wyoming and Idaho, and there is always a demand in Los Angeles and Kansas City for carload lots. Consumption of honey has doubled in the United States in the past ten years. No, there is no trouble about markets. The great trouble is disease. European and American foul brood are the great enemy, and Utah beemen are not fighting them as they should. The State bee-inspector will examine hives and notify the owners of disease and prescribe the remedy,



L. S. Griggs, Flint, Mich., in the car at Copemish, ready to start.

FROM THE FIELD OF EXPERIENCE

but the farmer is usually too busy to apply it. Utah beekeepers are also inclined to be careless about grading and packing. When I first came to the State, eight years ago, I wrote to a buyer in Kansas City and told him I had a carload of comb honey. The dealer on seeing the postmark said, 'You Utahans don't know how to grade honey' and paid no attention to me. I heard about it and asked him to send a man out to watch me. He did without my knowing it and I managed to satisfy him."

While Mr. Gill was initiating me into the mysteries of bee culture we were walking in his apiary. As long as I kept from swearing and gesticulating the bees did not sting me, and I ate peaches and plums while taking notes; for the colonies are scattered about an orchard protected on the east by a windbreak of box elder. Thus Mr. Gill has bees for a main source of income and takes a yearly flyer in fruit. (He pointed to one Flemish Beauty pear tree that had paid all of his taxes except six dollars.) There is no doubt that the honey product in this State could be indefinitely increased.

Frank R. Arnold.

Logan, Utah.



MOVING BEES BY FREIGHT

Loading on Cattle Car and Care of Bees During Trip

Recently we moved 184 colonies of bees from Copemish to Flint, Mich., a distance of about 200 miles—you might say between two honey flows, as the pin cherries, which get the bees to brooding nicely, had just

about finished blooming, and the alsike was just commencing, when we arrived in Flint.

As I had moved bees by freight before, Mr. Griggs invited me to go with him. On the morning of the 5th we drove six miles out to the bees and worked from about 8 in the morning till 4:30 p. m., the following morning equalizing brood and stapling a full set of extracting-combs above each colony, after which each bottom-board was fastened with four two-inch hive-staples, and a frame 1¼ inches high covered with wire screen was nailed over the top.

Then began the task of hauling six miles to the car, and loading. For shipment we had a cattle-car and loaded the hives with frames lengthwise of the car, two rows on each side of the car, and three double-story colonies high, placing above the first and second rows two 2x4 scantling lengthwise of the rows. These were then fastened by placing a 2x4 piece against each row and an upright piece at each end in the middle, fastened to the top and floor of the car with cleats and spikes. This left an alley thru the car, at each end of which Mr. Griggs and the writer had a bed of straw where we slept for two nights among the bees. During the night a bee would occasionally crawl over us, and in moving we would be stung. Then we would turn on our pocket searchlight, pick out the sting, and roll over and go to sleep again.

For the bees we carried a barrel of water which we sprinkled on the tops of the screens. Another time we would find it convenient to have with us a hand spray-pump to water the bees more effectively. We would also more securely fasten any loose



Bees at Copemish, Mich., before being prepared for shipment.

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hanging frames, as we found the side motion of the car, which at times was very considerable, killed quite a few bees. We arrived at Flint with every colony alive, and upon examination found only three queens missing out of 184 colonies. The bees were successfully moved to two yards in the suburbs of Flint, where they are now working nicely on clover bloom.

The writer's bees are in the vicinity of Flint; and so, including the bees Mr. Griggs had before his recent purchase, we now have nearly 700 colonies in all directions from Flint.

E. F. Townsend.



ONCE A BEEKEEPER ALWAYS ONE

Stiles Finds More Real Enjoyment in Bees than in a Professorship

There's no use in arguing the question any longer, a man who has once successfully kept bees will never be happy without them. Chas. F. Stiles of Stillwater, Okla., exemplifies this fact to a T.

When he was a lad of thirteen his father made him a present of six colonies of bees



Corner of Stiles' apiary that put him thru college.

hived in old box gums. The boy was delighted, but how was he going to do anything with them "put up" in those old boxes? Young as he was he saw the necessity of modern equipment and he thought, dreamed, and talked it until he got it.

The first year he sold enough honey to buy two modern hives, and just as soon as those bees found it out two of the strongest colonies swarmed. Of course, it would not do to disappoint them, so they were placed in the new hives.

They looked so "nifty" and worked so hard that the boy decided to speculate a little and borrowed enough money to buy modern hives for all the rest. His debt, however, was not of long standing, for he sold almost enough honey and wax, from the old boxes to pay for the new hives.

Each year the number of colonies increased until he had fifty colonies and had sold enough honey to pay his expenses in college.

The next four years college kept him

away from home and during that time the apiary was neglected until it was no longer profitable. Consequently in 1914 he sold all but a few colonies which he kept to supply the home table.

Just out of college! He thought he would be a professor and get a few feathers in his cap, and it actually took him four years to see the emptiness of that humdrum life. He was neither healthy nor happy—he wasn't healthy, because he wasn't happy. Under the strain of that nerve-racking confinement he grew paler and thinner until the doctor told him he must go West and seek outdoor employment.

What could he do? He had to go. Well, he just rambled around until one day he landed, plunk, right down in the middle of Oklahoma. Just about that time Dr. Phillips was looking for a man to be Special Field Agent in Bee Culture for the State of Oklahoma. Right then Stiles woke up. The very mention of bees set his pulse throbbing, his blood began flowing the right direction, and that hazy mist cleared away from his brain. He got the position and held it successfully for over a year. He grew strong and happy, but there was something lacking. He just couldn't be satisfied seeing the other fellow have all the pleasure of owning the bees. Hadn't he been a beekeeper once and didn't he know all that it meant to be a beekeeper? Yes, and he was going back.

The next thing anybody knew he had bought an agency for bee supplies and now calls his firm "The Stiles Bee Supply Company." He has an apiary, too—yes sir—that's the moral of the story.

Stillwater, Okla.

Lottie Altizer.



COLONY MORALE AND ROBBING

Nothing Depresses Colony Morale Quicker than Robbing

That's a good article in the June number, page 357, on "The Spirit of the Hive." I have noticed one or two other factors which influence this spirit quite a little.

Nothing depresses colony morale quicker than robbing in the apiary. In large apiaries, particularly on ranges like alfalfa, part of the yard is robbing all of the time or trying to. Everyone knows that in a yard of Italians there are nearly always a few bees in front of each hive trying to get in and steal and occasionally doing so. This keeps the colony always upset and nervous.

Any one can illustrate this point by setting a number of average colonies off from the main apiary in isolated locations, where their entrance is not exposed nor their hive conspicuous. I have noticed that such colonies average at least 20 to 25 per

FROM THE FIELD OF EXPERIENCE

cent better than the rest of the yard. For a long time I thought it was because they worked a different range from the main yard, but it's the decrease in robbing that does it.

This spring I set 62 of our weakest colonies along the south side of a ditch bank for additional warmth and protection from wind. As they were to be run for increase and needed few visits, I left them there all the spring. These nuclei got more nectar all the spring than the main yard of stronger stands, getting it even when the others did not seem to get any.

For a while I thought it was the additional warmth (which really does increase colony morale and ambition up to a certain extent after which it decreases it). However, asparagus and milkweed and grass grew up around these hives hiding their entrances, and eventually hiding the hives. Now, I never did think I liked my bees hid from view with weeds, but those bees very certainly did a lot better than the rest of the yard only a few feet away. I'll not advocate keeping weeds around bees to prevent robbing, for weeds in a yard certainly do go against the grain; but I do believe in small isolated yards, and in a prevention of robbing so far as possible, and—yes, I do believe I would let a little grass grow in front of the entrance if nowhere else. I believe the bees would rather climb down the grass than to be warding off robbers all the time.

Did you ever notice how foul brood (American at least) decreases the hive spirit? These are the stands which are the first to be robbed, at least after the disease is under noticeable headway. Do you know that American foul brood, besides destroying the larvæ, makes lots of bees sick and weak? Cage bees from foul brood and bees from a strong stand, and see which starves or succumbs first. Foul brood is like anything else that worries the bees, it certainly decreases the "colony morale."

Overton, Nev.

T. W. Riggs.



THOROUGHWORT OR BONESET

A Fall Flower That Contributes in Some Places to a Late Honey Flow

There are in North America some 47 species of *Eupatorium*, popularly called thoroughwort or boneset. They are most common in the Eastern United States, being especially abundant in the warmer climate of the Southern States, but are comparatively rare in the Rocky Mountain region. While many kinds thrive in dry woods and sandy fields, others grow in damp or wet soil, or even temporarily in running water. The thoroughworts are tall, coarse plants with large, resinous-dotted aromatic leaves, and white

or purple flowers grouped in large, flat-topped clusters.

The two most widely known species are common thoroughwort (*Eupatorium perfoliatum*), also called boneset, Indian sage, and ague weed; and purple boneset (*E. purpureum*), other English names of which are Joe-Pye weed, gravel root, queen of the meadow, and kidney root. These two species will usually be found listed in the honey floras of most of the Eastern States; but, owing to the fact that many other flowers bloom at the same time, pure thoroughwort honey is seldom obtained. Thoroughwort is an important component of the dense masses of weeds which cover the great sawgrass flats of Florida, but wild sunflower, goldenrods, asters, Spanish needles and smartweed bloom contemporaneously with it, so that the honey is a blend from many flowers. In most of the North goldenrod and aster greatly exceed thoroughwort in abundance.

In Tennessee, according to J. M. Buchanan, several species of *Eupatorium* are common along the northern edge of that State and yield heavily, especially white thoroughwort (*E. album*) and white snake-root or white sanicle (*E. ageratoides*). The former species is confined largely to the Southern States, but the latter is a woodland plant from New Brunswick to Louisiana. The honey is light amber, but has a rather high flavor. Further south, altho these plants are abundant, they produce very little honey. Thruout Kentucky thoroughwort is common on damp ground; but at Lexington, I am informed by the botanist of the experiment station, it is not abundant enough to furnish honey in any quantity. But at Hopkinsville, Virgil Weaver writes that he became acquainted with a beekeeper who said that it was one of his main sources of honey. It blooms in August and September and yields a light-amber honey with a fine flavor. The genus seems to be best represented in the southwestern part of the State.

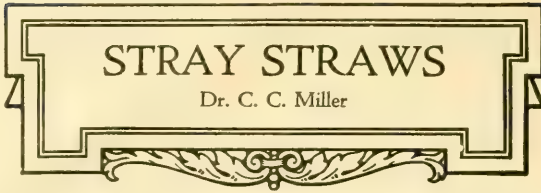
Eupatorium belongs to the Compositæ, a family in which the small tubular florets are massed in heads, and the heads are aggregated into conspicuous clusters. In the common thoroughwort (*E. perfoliatum*) there are from 12 to 15 florets in a head. The corolla-tube is about 2 mm. (about one-twelfth inch) long widening out into a little cup, so that the nectar can be reached by a great variety of insects, including bees, wasps, flies, butterflies and moths, and beetles. More than 130 species of insects have been collected on the flowers, which are sweet-scented. More butterflies have been observed by the writer to visit these flowers than others in this locality. The purple boneset (*E. purpureum*) has longer corolla-tubes and is visited by a much smaller number of insects, those with short tongues being excluded.

Waldoboro, Me.

John H. Lovell.

SPEAKING of strengthening weak colonies by giving them from strong colonies frames of brood with adhering bees, Iona Fowls says, page 459,

"When the frame is taken from the hive, and gently shaken, only the young bees are left on the comb, which may then be inserted in the other hive." A beginner might understand from this that without the shaking there would be danger of fighting. I have thus given brood and bees hundreds—yes, I think thousands of times. I never did any shaking, gentle or otherwise, and I never knew of harm resulting. But I was always careful not to give so many strange bees that they would outnumber the bees of the weak colony. But the shaking can do no harm, for the old bees would return to their old place anyhow, and it has just occurred to me that possibly by Miss Fowls' plan the precaution as to numbers might not be necessary. [The question was not, "Will the bees fight?" but "Why will they not fight?" In substance I answered, "Because they were not excited but acted naturally." Don't you think, Dr. Miller, that my acceptance of the latter question ought to imply a general negative to the former? But perhaps I did not make it quite clear. In apiaries that I believe to be free of disease I often give bees in this way, and without taking the trouble to shake the combs either. Nevertheless I would not guarantee that one could do this thousands of times with no bad results (not unless he had as good a strain of bees and as much experience as Dr. Miller). If the work is done with cross hybrids, or with bees unduly stirred up, there will be occasional cases in which fighting may take place and the queen, perhaps, be killed. Such trouble will not occur, however, if young bees instead of old ones are given. The gentle shaking sifts out the old bees from the young ones.—Editor.]



STRAY STRAWS

Dr. C. C. Miller

out first extracting them. One way was to make full exposure of the sections so all the bees of the apiary could get at them. If a single super of

sections were thus exposed, the comb would be torn to bits. But if there were several sections for each colony, the combs would be left untorn, and you could rely upon their being thoroly dry. If there were not enough sections to be left openly exposed, then I put out the supers in piles, allowing for each three of four supers an entrance for not more than one or two bees at a time. But in this way I sometimes found dead bees in the supers, as if the bees might have been fighting. Mrs. Demuth's plan is better than either of these, with danger of neither torn combs nor dead bees, if you can secure hearty co-operation of the bees.

* * *

H. H. Root, you say, page 461, that queen-excluders are practically unnecessary under section-supers, since the queen is little inclined to go up to lay in sections. Better put an "if" with that—if the section is entirely filled with foundation. If my sections were only partly filled with foundation I should certainly want to use excluders. When I have had an occasional section only partly filled with foundation the bees would be sure to fill out the vacancy with drone comb, likely to be filled with drone brood, or else held empty for the queen to lay in.

* * *

An ad in The Beekeepers' Item speaks of boiling foulbroody honey about ten minutes, and says: "This thoroly purifies the product so that it may be safely fed to the brood." Have there been any late investigations to warrant such a statement? According to all that I have read, ten full minutes, not to say anything as to "about ten minutes," would be much too short a time, even if the honey were kept actually boiling all the time. The Beekeepers' Item is a good paper, printing useful, readable matter, and it's up to Brother Scholl to look out that even its ads are kept free from error. If, however, you are able to justify the aforesaid statement, Brother S., the proper apology will be promptly forthcoming from this quarter. [Bulletin 92 O. K.'s this, but in practice we find more time advisable.—Editor.]

* * *

Belva M. Demuth gives some excellent instruction, page 426, as to management of sections at the winding up of the harvest, and at the close says: "We extract the honey from these few remaining sections and put them on a few hives overnight to be cleaned out by the bees." Do you find the bees always ready, Mrs. Demuth, to do this cleaning out promptly? In this locality they are quite unreliable. Even if they promptly clean up the mussy, they are likely to assemble the honey in a few cells in the sections, leaving one nearly as bad off as before. So I had to give up years ago getting honey cleaned up over a colony. Anyway, the plan wouldn't work with those who produce sections on a small scale and have no extractor. For many years I had the bees clean out the unfinished sections with-

In previous Straws I have had something to say about the number of cells to the square inch, basing my figures on the average five cells to the linear inch in natural comb built without any foundation. The majority, however, of those interested in the matter have combs built upon foundation, and care more to know what is the average number of cells to the square inch in combs thus built out. I measured the

rows of cells in a sheet of brood-foundation, and in the row of cells running horizontally found 40 cells in $8\frac{5}{8}$ inches. In one of the diagonal rows there were 42 cells in $8\frac{5}{8}$ inches, and in the other there were 42 cells in $8\frac{9}{16}$ inches. So there were 124 cells in the $25\frac{13}{16}$ inches measured, making the average diameter of the cell .20818 of an inch. Dividing 1.1547 by the square of that diameter gives 26.645 as the number of cells in a square inch. That's about 2 cells less than in comb built without foundation. Will all foundation give the same results? Very unlikely. I suppose that all foundation mills are alike, having perfect hexagons, but the sheets of wax will stretch in the milling, and different conditions will make the stretching vary. We need more data to have something reliable.

Later.—Now comes one H. H. Root, and deposes that the mills do not have perfect hexagons, but are made so as to allow for stretching. He gives further information that is very interesting, but rather disconcerting. He thinks 39 cells in 8 inches comes pretty close to the average. That would give 27.441 cells to the square inch. He measured a piece of surplus foundation, and says: "In 4 inches, horizontal measurement, I counted $19\frac{3}{4}$ cells. In one of the diagonal measurements there were $19\frac{1}{2}$, and in the other $19\frac{3}{4}$. These are not exact, merely as nearly as I could estimate with my eye." That would give 27.837 cells to the square inch. (I should have expected more stretching in the surplus foundation, hence fewer cells, but it seems the other way.)

We now have three numbers of cells to the square inch, there being a difference of a little more than one cell between the largest and smallest, and the average of the three is 27.307 cells to the square inch. What would be a fair thing to take for the average? Some of you figure-heads at Medina—I mean you fellows with heads for figures—help us out.

* * *

Arthur C. Miller says in *The Beekeeper's Item*: "I recently examined several hundred combs built on slack wires from standard weight foundation and **not** painted, and tho done by and built out under the care of an expert beekeeper, there was not a perfect comb in the lot. Approximately the upper inch of every comb was of stretched cells and useless for brood, or a reduction of brood capacity for the hive of about 10 per cent. Then by having the outer combs crowded against the sides of the hive the outer surfaces were useless for brood; so this beekeeper like thousands of others had but the equivalent of eight combs on a ten-frame investment." Mr. Miller's remedy is the Vogeler process of painting hot wax over the surface of the foundation. This matter of having cells in the upper part of the comb that the queen will not use is a serious one, all the more serious because many are not aware of their loss by it. The

notion that bees will not use the upper inch of comb for brood is, I am sure, erroneous unless there be something wrong with that upper inch. By using foundation splints I have had the row of cells next the top-bar nicely filled with brood. [The stretching of the inch or two of comb next the top-bar is a condition that is all too common. Since the editor has been in California he believes he has a solution that will increase the breeding capacity of the brood-chamber from 10 to 20 per cent. He will have something to say on that question in a subsequent article later on. The stretching of the top row of cells has so reduced the queen's capacity that swarming has resulted where in many cases it could have been avoided. And the actual crop of honey has been reduced because the working force has been curtailed in proportion as the breeding capacity has been limited by the stretching of the before-mentioned cells.—Editor.]

* * *

M. S. P. writes: "I am sure that if one were even to hammer the ground near a hive that the vibration along the ground, as well as thru the atmosphere, would excite the bees to a high nervous pitch. I have noticed this often, and am sure that while they may hear, vibration is the cause of what we suppose is hearing." I think it is generally understood that jarring a hive, which the bees feel, but do not hear, is the cause of trouble. But that proves nothing one way or the other, about hearing. I can feel a jar without hearing it, and I can hear a noise without feeling it. Why may it not be the same with bees?

* * *

Eugene Secor was a good man in many ways, but among beekeepers will probably be best remembered as the beekeepers' poet. Nearly all the beekeepers' songs were written by him. I don't know how much of a musician he was; but he had his own notions about the music to be set to his songs, and when sending to me the words to which he wanted music written he nearly always had some suggestion as to movement, chorus, or something of the kind.

* * *

In Texas, as in other States, there is diversity as to taxation of bees, they being taxed in some counties and not in others. *The Beekeepers' Item* reports that at a late meeting of Texas inspectors this resolution was passed: "Be it resolved that the County Apiary Inspectors go on record as favoring the rendition of bees for taxes in every county in the State." Which goes to show that those Texas inspectors have sense.

* * *

"It is regrettable that there is no law to prevent those who have no regard at all for the golden rule from poaching on the territory of others," page 418. Thanks, Mr. Editor, many thanks. Whenever enough get to talking that way, there is no reason why there may not be such a law.

MERRY are these mornings at our home, as the truck is loaded with brood-chambers filled with frames of foundation, supers of sections, smokers, bee-veils, extra clothes in case of rain, lunches for the noonday meal; and two experienced beemen with two strong boys, with jest and laughter, start for outyards four to twelve miles away.

* * *

Bees are doing well in this section altho the weather has been too cold and wet for the greatest yield of honey. A light frost on the mornings of June 22 and 29 reminds us that winter lasts until July in New England and "comes out in spots all summer."

* * *

The idea of putting a super of brood-combs on a hive after the sections are removed at the close of the season, as advised by Belva M. Demuth, page 426, is new to me. About here we want for winter use all the late honey, if there is any stored in the brood-chamber. "Locality" again.

* * *

When I read of the immense quantities of extracted honey that is being produced in earloads and earloads, I am reminded of a letter written about 1872 by D. W. Quimby of New York to the American Bee Journal, asking beekeepers not to ship extracted honey to New York as there was very little demand for it.

* * *

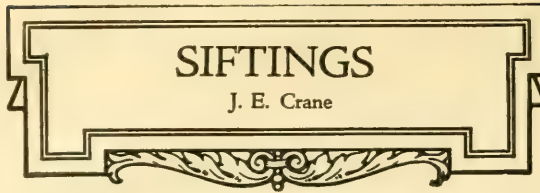
I find a super of shallow frames about as heavy as I care to lift alone; but, with a strong boy to help, I can lift those with deep frames just as well. We are using only seven frames in an eight-frame super this year. It saves frames and makes uncapping easier.

* * *

J. L. Byer says, page 449, "One thing sure, the prospective or present active beekeeper must more than ever realize the necessity of being able to diagnose the two brands of foul brood, and in a measure be his own inspector." He hits the nail square on the head. It looks hereabouts as tho the old-fashioned let-alone beekeepers are about to go out of business and stay out.

* * *

I received a nice letter from S. A. Ratliff, some time since, explaining the reason for holes in the bottom of aluminum combs. These holes were, he said, for the purpose of getting the bees started to work in the combs. I was glad to know this. The aluminum comb I had was placed in the center of a strong colony June 21, and I found three days later all these holes stopped in the central part of the comb, and in a week nearly all were closed with wax, and some



honey and pollen stored. After eleven days there was, I judged, one and one-half pounds of honey stored near the top and ends of the comb while the

central part was left for brood. The workers evidently thought it was all right for this purpose; but the queen, more fastidious, had refused to trust her eggs to a metal comb. However, queens often refuse to lay in new combs when they can find old ones in which to lay. After the bees have worked it over, it looks absolutely perfect, and no one would suspect its artificial origin except by the color and ends. I am watching it with intense interest. Of course, one comb in one hive is not a fair test of its value. Whether these combs prove a success or otherwise, the person who succeeded in making them is worthy of great credit. I hope they may prove all that is claimed for them.

* * *

An invalid across the street, confined most of the time to an open air porch, finds not a little recreation and enjoyment in a one-comb glass hive. The glass is covered with corrugated paper when the bees are not being watched or studied.

* * *

This section seems to be improving in honey resources. In an inspection trip a few days ago with a horse and carriage, I saw very few meadows in which there was not more or less alsike clover in blossom. A horse and carriage is, to my mind, much better for looking over the country than an auto. A new colony on scales yesterday gained eight and one-fourth pounds.

* * *

That press for extracting the honey from cappings, page 423, July Gleanings, looks good, but—Mr. Holtermann represents it as being able to press out nearly all the honey when the cappings are dropped directly into the hoops and then pressed; and then farther on he tells us that Mr. Bedell by first allowing his cappings to drain thoroly before pressing them saved some 40 pounds of honey to each one thousand pounds of honey extracted. He is quite sure very little honey is left in the cakes of pressed cappings, for in chewing pieces of these cakes the wax is only slightly sweet. It would be interesting to know the exact proportion of wax and honey in these cakes. We could then estimate quite accurately the saving by the use of the press. [The fact that Mr. Bedell is willing to uncup directly into the hoops and then press instead of allowing to drain a day as he did last year, would indicate that he is getting nearly if not quite as good results in this way. We cannot tell the exact amount of honey left but, from the samples we saw, the amount must be very slight indeed.—Editor.]

WHEN I was a small girl studying geography in the grade schools we were taught that the superiority of the peoples of Europe and North America over the inhabitants of the tropical

countries was due to climate, that cool or cold and bracing weather was conducive to energy, and for that reason Europeans and their descendants had always been progressive and the dominant race. Personally I shall continue to believe there is some truth in that theory, for altho I love summer days with sunshine, blue skies, and moderately warm weather, the kind of a day when bees are busy on the basswoods wilts energy and ambition right out of me.

But now comes Dr. McCollum, of Johns Hopkins University, with the claim that the cause of the inferiority of the peoples of the tropics, represented by a large part of India, China, Japan, and the Philippine Islands, is because they have never developed a dairy industry, that they have never used milk, and their consumption of eggs is small except among the well to do. He says they are with few exceptions undersized, poorly nourished, and have a short span of life, that their infant mortality is the highest of any peoples of the world. They have never achieved much in the fields of science, literature, art, or invention, but have been content to go on generation after generation in the ways of their forefathers.

Dr. McCollum is professor of chemical hygiene of Johns Hopkins University and has been in charge of prolonged feeding experiments both upon animals and groups of human beings, these feeding experiments, some 3,100 in all, extending over a period of eleven years. These experiments developed the fact that it is impossible to make up animal diets which would preserve the species thru three generations without milk, eggs, or the leafy portions of plants. Animals which were fed a ration of cereals, legume seeds, such as dried peas and beans, tubers and edible roots, even with the addition of as much as ten per cent of meat, such as steaks and other muscle tissues, failed to make a normal growth, and premature degeneration took place in the older animals.

There are three reasons why diets lacking the above-named foods are inadequate: first, all such diets are deficient in certain soluble minerals; second, they lack the so-called vitamin soluble in fats, called by McCollum "Fat soluble A;" third, the proteins found in milk, eggs, and meats are worth about six times as much to the living body as the protein found in legumes, such as dried peas and beans.

It is for these three reasons that McCollum coined the term "Protective Foods" for milk, eggs, and the leafy vegetables, such as

OUR FOOD PAGE

Stancy Puerden

spinach, lettuce, Swiss Chard, cabbage, celery tops, turnip tops, Brussels Sprouts, etc.

At this point someone may wonder why we human beings

may not depend entirely upon the leafy vegetables for our protective foods instead of being obliged to supplement them with milk. Human beings do not seem to be so constituted as to be able to use the leafy vegetables for a very large proportion of their diet. Apparently our digestive apparatus is not designed to accommodate enough of the leafy portions of plants for safety, and we must, therefore, in addition to a generous supply of the leafy vegetables, depend upon the grass-eating, milk-producing animals for milk if we wish to be adequately nourished. The meat of these same animals, tho a valuable food, will not take the place of their milk. It is deficient in the growth-promoting principle, essential not only to the young but also to the adult to prevent premature degenerative changes.

McCollum points out that the Orientals and the peoples of the tropics eat much more of the green leaves than we do, and he believes it is this which has preserved them from total extinction.

Let me quote a little direct from Dr. A. C. Sherman, professor of food chemistry of Columbia University and author of several valuable books on foods and food chemistry.

"So far as things so different in character can be compared with each other, it seems perfectly safe, in view of our present knowledge of nutrition, to say that a quart of milk is a greater asset to the family dietary than is a pound of steak, and anyone that can afford to buy meat at all can better afford to buy milk. Lusk's dictum that the housewife having a family of five to feed should buy three quarts of milk before buying a pound of meat remains as sound as ever, altho the prices of both have risen."

Do you sometimes wonder why Our Food Page touches on this subject so frequently? It is because in these days of rapidly advancing prices too many housekeepers are inclined to economize on the milk supply and the amount of green vegetables, regarding the first as a beverage and the second as a luxury with little food value. A walk in the residence district of almost any town, just after the milkman has been on his rounds, reveals milk bottles all too small and too few in number. As a result the dairy herds all over the country are being reduced and there is a prospect of our race suffering from mal-nutrition and deteriorating physically and mentally.

NOW that we have reached the conclusion that we should all use milk and plenty of it, let us consider the subject

of the milk supply. Those who have never owned a cow of their own can never imagine how good milk, cream, and butter really can taste. Fresh milk to drink twice a day, pans of milk covered with thick, yellow cream in the ice box, and perhaps a firm little pat of butter of home manufacture give a housekeeper a wonderful feeling of satisfaction. Whenever practicable I believe a family should own a cow, or at least have part interest in a cow while their children are growing up. For years we have owned one-sixth part of two cows, which would be equal to a third of a cow, wouldn't it? and most of the time we have all the fresh milk and cream we can use, and occasionally we have enough cream to spare for a little pat of sweet butter, churned in a cream whip. It is great fun, and the work of straining, dividing the milk and washing pails and cloth strainer does not become a burden if each family takes it in turn, a month at a time.

If you are unfortunate enough to find yourself in a locality where fresh milk cannot be secured, dried milk may now be obtained by sending direct to the producers. This is pure, pasteurized milk, reduced to a powder by a process which removes all the water content, and when the water is restored it looks and tastes like fresh milk which has been heated to the point of pasteurization. It will keep indefinitely in the dry, powdered state, but when mixed with the required amount of water will sour as ordinary milk. Both dried whole milk and dried skimmed milk, suitable for cooking purposes, may now be obtained. They have been used by large baking industries for some time, but have only recently been offered to the public.

If it is difficult to induce your family to drink enough milk there are endless ways to use milk and the milk products in cooking, such as creamed and scalloped potatoes, creamed vegetables of all kinds, creamed chipped beef or codfish, white sauce, custards, puddings, junkets, bonnyclabber, etc., and nearly all good housekeepers are glad to have sour milk for use in baking.

As to cream, there is just no limit to its possibilities; vegetables, fruits, and cereals are nearly all improved by the addition of a little cream. A spoonful of whipped cream placed on a dish of cream of vegetable soup just before it is served will spread over the surface and give the soup a velvety texture. Pie crust spread with cream just before it is put in the oven will taste much richer than it is and will brown delicately and have a delicious flaky texture and fine flavor.

Cottage Cheese.

If you like cottage cheese and can produce an article which satisfies your own household, you will not need to read this; but several people have told me they never liked cottage cheese until they tasted mine, and so I will tell my way on the chance that there may be others with similar tastes.

In the first place, when you remove the milk from the ice box be sure to put it in

a warm place to sour quickly. Because of the necessity for this it is easier to make cottage cheese in the summer, but good cheese may be made in the winter if the milk is soured in a warm part of the kitchen instead of in a cool pantry. When it is solidly clabbered place the utensil containing it on a stove mat over a gas burner turned low or a moderately hot part of the range. It is well to cut thru the curd several times to make sure that the heat can penetrate evenly.

So far this is just as anyone else makes cottage cheese; but where others merely warm the curd I heat it steaming hot and then remove it from the burner and let it partially cool before turning it into a colander to drain. This leaves the curd firm and dry but not tough. When the curd is not heated to this point a little of the whey is left in the cheese, and I believe it is the slightly bitter taste of the whey to which many people object. When thoroly drained put the curd in the ice box until ready to serve, when it should be worked until smooth with the back of a spoon, seasoning it with salt and adding cream until it is as soft as desired. Serve it with more cream poured over it and sprinkled lightly with pepper or paprika. If you have no cream, work softened butter and a little milk into it.

Chopped green sweet pepper or canned pimento may be added to cottage cheese, or it may be packed into green sweet pepper cases. It is also very tempting served with marmalade, preserves, or honey.

CREAM SALAD DRESSING.

- | | |
|--------------------------------------|--------------------------------------|
| 1/2 cup sweet or slightly sour cream | 2 tablespoons vinegar |
| 1 teaspoon sugar or honey | Dash of pepper or paprika |
| 1/2 teaspoon salt | 1 teaspoon minced onion, if desired. |

Add the dry ingredients to the cream and then the vinegar, a little at a time, beating constantly. Serve with green vegetables.

EGGS POACHED IN MILK.

- | | |
|----------------|-----------------|
| 6 eggs or less | 1 teaspoon salt |
| 2 cups milk | Buttered toast. |

Turn the milk into a frying pan, bring to a scald, and add salt. Break the eggs into a saucer, one at a time, and slip into the scalded milk, cover and cook until set. Serve on the buttered toast, the crusts of which have been softened in the hot milk. Do not let the milk boil. Skimmed milk may be used.

GREEN CORN PUDDING.

- | | |
|---|----------------------------|
| 2 cups fresh green corn cut from cob, or 1 can corn | 1 tablespoon honey |
| 2 eggs | 1 teaspoon salt |
| 1 tablespoon butter | Pepper or paprika to taste |
| | 1 1/2 cups milk. |

Carefully cut the corn from the cob, cutting only halfway thru the kernel and scraping out the rest of the pulp with the back of the knife; mix with the eggs slightly beaten, the butter, honey, and dry ingredients; add the milk and bake in a glass or earthenware pudding dish until the custard is set. It should bake slowly.

"IT is written 'in the sweat of thy brow,' but it was never written 'in the breaking of thine heart' thou shalt eat bread; * * *

Now in order that people may be happy in their work, these three things are needed: They must be fit for it; they must not do too much of it; and they must have a sense of success in it."

This is part of what John Ruskin said about happiness in work. He also says this:

"All rivers, small or large, agree in one character; they like to lean a little to one side; they cannot bear to have their channels deepest in the middle, but will always, if they can, have one bank to sun themselves upon, and another to get cool under; one shingly shore to play over, where they may be shallow, and foolish, and childlike; and another steep shore, under which they can pause and purify themselves, and get their strength of waves fully together for due occasions. Rivers in this way are just like wise men, who keep one side of their life for play, and another for work; and can be brilliant, and chattering, and transparent when they are at ease, and yet take deep counsel on the other side when they set themselves to the main purpose."

Daddy Lowe is not the only one who loves Ruskin. For many years his truth and beauty and noble charm have held thousands of readers captive. The hours yield themselves utterly to the spell of Ruskin's page, and as I close the book, to come back to tasks that call me, there are shreds and scraps of his beauty tangled in my thought. Tho the clatter of things to be done brush away many of these precious bits, these two I had to share with all true sideliners. They are ours.

Indeed, all the gifts of all the great minds of all the ages are ours, merely for the claiming, and we miss by far the most precious part of our inheritance when we fail to claim them. Shall we give our hours and our thoughts so completely to honey-production and honey-marketing, and those things that give food and drink to the body, that we forget the more important things that give food and drink to the soul?

We hear about "reading beekeepers" and the phrase means to us beekeepers who read about beekeeping. As they should—oh, most steadily and enthusiastically and profitably. But tho I read all the books on the gentle art of beekeeping—Langstroth, Quinby, Miller, Phillips, Pellett, A B C, and the rest; tho I digest bulletins and treatises and Gleanings and all the other journals in print—if you grant me no time or opportunity to read anything else, anything written out of the high mood of somebody's soul, then, tho you develop a success-

Beekeeping as a Side Line

Grace Allen

ful beekeeper, how about me, myself? I shall have starved.

Love of books, great books, and love of outdoors—grand scene or gentle scene, cloud or star or

springing grass—what are these but love of beauty, and what is that but love of God?

If you don't mind my being personal, you know I met Dr. Miller last winter. And tho of course I knew it of him before, still, even if I had not, as soon as I saw him I couldn't help knowing that he was something more, something much more, than even a great beekeeper—he was a man with a great soul, that had fed thru long quiet hours on great books, and living beauty, and high thinking. And there was Eugene Secor, whose sudden and tragic death so shocked us all last May. Shortly before his death he had sent me copies of two addresses he delivered this spring. They were both filled with the thoughtful dignity of a nature-lover who had taken time to live fully, deeply, richly. Note this, from one of them:

"One cannot live in the wonderful presence of Nature without becoming wiser, better, and happier. The real sages of all ages were outdoor men. The mind expands in contact with the work of the Infinite Purpose. * * * There is something about the outdoor world that makes one feel that man is only a small part of a great system, and that thought should make one humble and impressionable to higher purposes and nobler aims than mere money getting."

Perhaps, if you chance to be a professional beekeeper, you are thinking, "Oh, reading is all very well for sideliners—you, for instance, have only 50 colonies—I have a thousand—I have no time for these things." Then you better sell about nine hundred and fifty! And buy a book—and a rose!

Except for its absurd exaggeration, there is nothing foolish or impractical about that. Wasn't it Mahomet who said, "If I had but two loaves of bread, I should sell one and buy a hyacinth for my soul?" The wisest and most practical thing in all the world is the thing that keeps the inner selves of us fine and high. For "this secret and poetical enthusiasm in all your hearts is indeed one of the holiest parts of your being." Which brings us right back to Ruskin again.

The few reports we have heard to date of honey crops around here are as discouraging as we expected, not more than 25 to 30 pounds average, spring count. Rather dark honey at that. Probably some of us will enter into competition with W. J. Harvey of Upaleo, Utah, for the prize for the best record for 1919! The local crop as a whole may, however, rise to a better average than this. One thing looks certain to me. Where you get very often such small crops as that,

shallow supers are preferable to full-depth. The little combs are filled and sealed to the bottom-bars, while full-depth combs are not ready to extract.

One day I sat idly watching the bees, and just as my eyes dropped on one colony, I saw a sudden excited bunching of the bees on the front of the hive, a bit above the entrance. Stepping closer, I found a queen the center of attraction, presumably a young one just returned from her nuptial flight. What a time she had finding her way into the entrance, or at any rate, what a time she took. She went nearly to the top of the hive, then nearly back down, then around the corner to the side. Presently I held my hive tool in front of her, and she obligingly ran on it. I laid the tool in the entrance, but she wandered off down on the grass, all the time with a goodly following of eager attendants. At last, however, she climbed back up the alighting board, and ran into the entrance.

One thousand, seven hundred and nineteen hives burned! Didn't Jamaica act quickly and severely when foul brood came her way? What would our Fire Department, that rushed so vainly but valiantly forth to extinguish a one-hive fire, have done with such a mighty conflagration? Well, anyway, it sounds thoro.

We have seen no further sign of disease since promptly treating our one tragedy. I have been expecting to find it in the swarm this colony had cast about two weeks before the trouble was discovered, and over which, in approved orthodox style, I had set the super from the parent hive. So far it is free, however.

"Shade is convenient, but not essential," Mr. Buchanan says, page 360, June. Mr. Bartholomew used to assert the same thing, — that shade was in no wise essential.

Last month a neighbor returning from a visit to Chattanooga told me of having been seriously ill while there. Shortly after breakfast one morning she seemed threatened with a violent headache; soon, becoming dizzy and very sick, she rose to leave the room. Thereupon she fainted dead away, and, after being restored to consciousness, was taken with horrible nausea and vomiting. Her hostess and friends were distressed and gave her the best possible care. Of course she ate no lunch. The others did, however, and soon afterwards two others became ill about the same way. A doctor was called, and questioning developed the fact that my neighbor was the only one who had eaten honey for breakfast, while the other two ate it for lunch. This honey had just been brought down from the mountains, where the mountain laurel had been for some time in full bloom. Repeated reports of similar trouble make a bad case against this beautiful blossom. I recall when I was attending a reception in a near-by county a few years ago, how lovely the summer home looked with great jars of mountain laurel thru all the spacious halls and on the wide

verandas, and how emphatically a young lady disagreed with me when I exclaimed in admiration over its beauty. "I certainly don't like it," she declared, "it poisons my father's cattle."

It was two weeks ago that we brought home the supers from the little country yard, to extract. A double-handful of bees that came with them collected on the corner of the screened window of the shed where we extracted. Mr. Allen loosened a few tacks and let them out. Ever since then, they have hung collected in a little bunch there on the outside corner of that screen wire. Two weeks is a long time, isn't it? But just the same, there they are.

Bee-escapes usually work well when they work, but about one colony in ten doesn't empty the super thru them at all, for us. The bees just don't go down. We looked ours all over before putting them on, boiling up most of the escapes to make sure they were not choked with propolis, yet a few supers had about as many bees the day after escape-boards were put under them as before. In only one was the escape clogged, where a drone had wiggled himself into a misunderstanding with the escape and died in its clutch. Bees in these supers were brushed from the combs.

There was no disturbance at all in getting the honey away from the yard, tho it was taken about 50 feet on a wheelbarrow and stacked, awaiting the delayed truck. We were painfully particular to keep it covered while thus being carted out of the yard. But returning the empty supers, when of course the process was reversed, the supers being stacked on the ground by the driver and immediately wheeled to the colonies, there was a different story. The truck reached the yard about seven o'clock, but the bees were on those empties faster than they could be wheeled down and put back on the hives. And after they were all on, there were menacing rows of bees along every crack and a decided uproar in the yard. It could not last long, however, at that hour. Beginners will do well to believe that there is a sound reason for the advice not to return wet extracting-supers till evening.

* * *

THE UNCAPTURED SONG.

My soul stood silent on a hill
Of listening. And something sung!
Bright flocks of sky-born vibrant things
In sun-blind distance hung.

From out the blue of heaven they flew,
And high in heaven stayed.
Across and thru its heart of blue
They swung—and swayed.

The far sweet drift of sun-loved song
My tense soul strained to hear;
"O flashing, rhythmic, far-off wings,
Fly near! Fly near!"

I listened long, but lost the song—
My empty world is still.
Some other time my soul shall climb
A higher hill.



FROM NORTH, EAST, WEST AND SOUTH



In Texas.—The new foul-brood regulations have been sent to every beekeeper whose name appears on the mailing list in the office of the State Entomologist. No doubt there are many who are interested in these regulations who have not received a copy. Such parties should make application for Control Circular D of the Experiment Station. These regulations are greatly changed from those formerly in force, and it is to the interest of every beekeeper to acquaint himself with them.

H. B. Parks, formerly with the Extension Service of the A. and M. College, has accepted a position with the Experiment Station. Mr. Parks has traveled widely among the beekeepers of the State and is thoroughly acquainted with every section and its problems. In his new work, in charge of the work of the experimental apiaries, this close contact with the apicultural conditions of the State will be of special value. All of those who are acquainted with the work which Mr. Parks has done in the past, feel that in his new line of work he will be able to secure results of great value.

Beekeepers are urged to prepare for the apiary exhibit at the State Fair this fall. T. P. Robinson of Bartlett, who is in charge of this work, has requested the co-operation of every beekeeper in making the exhibit the most attractive that has even been shown. The war has placed honey before every household and it is up to the beekeepers to retain it in this position. Good premiums are being offered, which should prove to be an inducement to many.

Henry Brenner of Seguin has returned to Santo Domingo after a visit of six weeks in Texas. Mr. Brenner has extensive yards that have been developed during the war. He feels that the future of beekeeping in the islands is very bright. Mr. Brenner has been responsible for the introduction of late methods and an excellent stock of queens.

One hears among other questions, "When is the price of honey going to come down?" This is a rather difficult question to answer; but one thing is certain, the beekeepers are doing all in their power to push down the price of honey. In one section there has been a very good crop of honey harvested, and every one seems to feel that it is necessary to put this honey on the market at once. They have been warned time and again that this is not a good marketing principle. Extracted honey was bringing as much as 16½ cents f. o. b., loading station. Now there are plenty of beekeepers who are begging to sell their honey at 10 to 11 cents. How is it going to be possible to command the respect of the public for honey when such practice is so common? There will soon come a time when co-operative organization can not offset such practice. It is now due to co-operative selling organizations that all honey is not 10 cents. And

do such beekeepers think there can be any money in such selling? One has only to recall that supplies in general have increased 100 per cent in cost to see the fallacy of selling honey on a pre-war basis. Why do the beekeepers continue such suicidal practices?

Local and sectional rains prevailed over the State during May and June. In such localities the honey crop has been short. Colonies have been observed to consume all surplus during each rainy spell. The probable honey crop has been more difficult to forecast this year than for many past.

College Station, Tex. F. B. Paddock.

* * *

In Ontario.—Reports received to date (July 9) seem to point to the fact that the white-honey crop for Ontario this year will be very light. Some 8 or 10 counties are included in these reports and they run from nothing at all to 50 per cent of a full crop. As an exception to the rule, the locality around Lindsay in Victoria County will have a good crop. Abundance of rain there all thru the season tempered the extreme heat and kept the clover alive, while 15 miles north of Lindsay where we have one apiary, everything was literally burnt up so far as clover bloom was concerned. Last year conditions were exactly reversed in those localities, which goes to show that one season is not sufficient to size up the honey possibilities of any location. For the first time in my experience we have obtained quite a respectable surplus from raspberry. At the apiary 16 miles north of Lindsay already referred to, the colonies were so strong that I was at a loss to know what to do to hold them in during clover provided the latter yielded like last year. But that immense force of bees so early in the season proved a real bonanza for this year, as they were in shape to take advantage of the raspberry flow, which was better than usual. With no clover flow at this yard, bees lost all desire to swarm; and, after all our planning to hold down swarming, we find the precautions needless unless something unusual happens to bring on another flow. When the clover season is over swarming is always reduced to a minimum, no matter how much honey comes in—at least that has been our experience.

Following the extreme heat of over a month, with temperatures running from 90 to 100 in the shade all the time, we have now had heavy rains and cool weather. Basswood has a great showing of bloom; but here in Markham hardly a bee is to be seen on the blossoms as yet, so it looks like another failure from that source. However, we do not count on basswood any more, for it fails to yield nectar five years out of six in our various locations.

Speaking of the heat wave, I cannot resist telling of the experience of some good



FROM NORTH, EAST, WEST AND SOUTH



friends who motored from Pennsylvania during the time we had our most extreme heat. They had a great amount of luggage with them, and by a roundabout way I learned that they had brought lots of heavy underwear with them to wear while up in "cold" Canada. I jokingly asked them why they were not utilizing all those extra garments at the time they were at our place—the thermometer standing at 98 degrees at the time. But if they come up here some time next January or February I will advise them to bring the same equipment along, even if they didn't need it this time.

Honey prices are being discussed these days among the beekeepers fortunate enough to get a crop, and about every mail brings letters asking my opinion on the matter. Frankly I do not have any idea as to how prices will run. Everything else is so very high in price that I hesitate to make even a guess at prices for honey. Raspberries are bringing 37 to 38 cents a small box today in Toronto in a wholesale way, retailing out at 40 or over—we are shipping raspberries to dealers and honestly I am ashamed to take such inflated prices for such a small article of food. But what is a person to do in such a case? The dealer pays the price with no bargaining on the seller's part, so the only way I see to square up is to take the money and then shell out some of the proceeds to needy institutions. But there is something wrong, and I tremble to think of the final outcome of this orgy of high prices for food if it is continued too long. If export to Britain assumes proportions to amount to anything, honey will be as high as last year or higher. If there is no export demand, I do not think honey will be as high as last year—especially buckwheat—even if the crop is light. That is my guess, and time will tell if it is a good one or not.

Speaking of buckwheat, prospects were never better than they are this year for a crop from that source. Recent rains are bringing along hundreds of acres, and, as there has been practically no swarming, colonies will all be in the best of condition to take advantage of the flow if it should yield. But prospects were never better for clover than this year, and yet few localities have obtained very much from that source. Beekeepers, however, are always hopeful, so I am looking for tons and tons of buckwheat honey this year, **provided the buckwheat yields nectar.**

This mysterious disease going under different names, understood by no one seemingly and quite appropriately best known as "disappearing disease," gave us a call again this year. During all the extreme changes of the spring and all of June we watched the yards for signs of the disease, but none appeared even if the weather was very hot and dry or very cool and wet. On

July 1 we noticed quite a number of worker bees and drones traveling fast in an aimless way so far as directions were concerned, but eventually ending up in piles of bees wherever there were any hollows in the ground. The next day there were thousands of bees crawling around so thick that one could not walk thru the yard without tramping on many of them, and the next day there were **none** crawling around, and hardly a bee since. I have no explanations to offer. The days the bees were dying were the days that clover yielded the most for the season. The weather was hot and clear.

Markham, Ont.

J. L. Byer.

* * *

In Northern California.—During the past month there has been much discouragement among beekeepers thruout almost our entire section. It might be said and without fear of contradiction that colonies were in better shape both as to bees and brood during March and April than they were in June. May and June were both "downhill" months, due to continued cold days and nights and windy weather. At this writing (July 5) your correspondent doubts whether there is much more than a ton of honey on his colonies at the present time, whereas last year at this date over 12 tons had been extracted. Beginning with July alfalfa commenced to yield. At various points thruout our section grasshoppers (central) and army worms (southern) have caused considerable damage, but on the other hand butterflies are not near so prevalent as they have been during the past two years. The factor, however, that concerns the beekeeper most is the condition of the colonies at the present time. Despite continuous feeding by many beekeepers there are thousands of colonies in the valleys today that have not more than five or six frames of brood and hardly enough bees to work in the supers. Should we take it for granted that there will be an excellent fall flow, nevertheless we may not expect a full crop this year. Alfalfa is the mainstay, and on the first few weeks of flow from this source the bees are building up to full strength, which necessarily means less honey. In the southern part of our section alfalfa is going to do better than the forecast of a few weeks ago indicated. Of the fall plants alkali weed looks the most promising, and this is especially true thruout the eastern part of our southern section. The stand of bluecurls is not of the best, and we need not anticipate much nectar from this source.

What are we going to get for our honey? This question is now being asked constantly. Unquestionably, California will have a short crop, for orange and sage were off and alfalfa will be. The California Honey Producers' Co-operative Exchange will market almost all of our honey, and its officials know



FROM NORTH, EAST, WEST AND SOUTH



that our crop will be short. It is the writer's belief that light amber honey will sell from 13 to 15 cents per pound, and that white (15 to 30 per cent of our honey grades is white) will bring from 15 to 18 cents. At present it seems that the U. S. crop will be slightly less than normal. During the past three years the value of honey imported into the country increased about eight times the normal, and the value of honey exported increased nearly ten times. During the same period exports of sugar decreased to about one-third the normal amount, and the three-year period likewise shows a falling off of over four million tons in the world's production of sugar. For some years to come Europe will need sweets, and with increased shipping facilities the demand for this food should be met. Furthermore, the above indicates that honey is being recognized to a much fuller extent. Prior to the war, the United States produced a full crop of honey which was almost entirely consumed in the country. It is up to our Exchange to make the most of this demand, to analyze the markets thoroly, and to distribute the crop thru the best possible channels. It is a big task and a hard one.

Last week the writer had a very pleasant visit from E. R. Root. He seemed to like our section and was much impressed with the wonderful opportunities which it affords. Mr. Root concurs with the writer that the migratory beekeeper has a great future. This phase of beekeeping may be summed up in the following few words—it's hard work but it pays.

Modesto, Calif. * * * M. C. Richter.

In Southern California.—Honey market conditions are at present hard to ascertain. The greater part of the crop of the State is to be handled by the California Co-operative Exchange. A few producers outside of the Exchange report sales at 18, 19, and 20 cents per pound for extracted honey.

It is now a demonstrated fact that the honey crop of southern California is to be a very short one. In ordinary seasons, June first finds your correspondent with about half of his honey crop made. This year I have made no surplus honey since that date.

On a recent trip (June 17 and 18) of about 160 miles across much of the honey-producing territory of Riverside and San Diego Counties, very little honey had been extracted. The vegetation looked well in some sections where the spring rains had been quite plentiful, but those sections are scarce. In most locations a light crop was predicted, but in some places no surplus honey was expected.

A large producer, one with long experience also, reports about 65 per cent of a crop for Imperial County. The cool nights during May and the first half of June cut

the flow from the alfalfa very materially. While these large irrigated valleys always produce some honey, it takes ideal weather conditions to make a big crop.

The oranges, as has already been reported, yielded from 20 to 60 pounds per colony. Sixty pounds were produced in only a few cases. An estimate of between 35 and 40 cars of orange honey (250 cases to a car) for California was made at a recent meeting of beekeepers. A large per cent of this will be consumed on the Pacific Coast.

Many more beekeepers than usual moved to the orange groves last spring. The same is true in regard to the lima-bean fields this summer. Many who in ordinary seasons would move from the oranges to the sages, this year moved from the oranges to the bean fields. As the beans are just beginning to bloom, it is yet too early to tell how plentifully they will yield nectar. Some of our old-time Ventura beekeepers have for years successfully moved from the purple-sage ranges to the bean fields of Ventura Co. Originally Ventura County was considered the bean county when we spoke of lima beans; but for the past 12 or 15 years the industry has grown until now Los Angeles and Orange Counties stand as close rivals in the quantity of beans produced. Some growers recognize the value of the bees as a pollenizing agent and welcome the beemen. Others are not so friendly when a man is looking for a location for an apiary. Many beekeepers feel it is a profitable step to take, and they move to the beans even tho the bees may get only enough honey for winter stores and to build up well in the spring. Any late flow that will give this result, allowing one to extract all of the orange honey, will pay for moving this year.

Chas. Kinzie of Riverside caught a large swarm of bees on April 22. It was put in a ten-frame Langstroth hive, comfortably filling the body and two supers. Drawn combs were given as needed. On May 22 the colony had 28 frames of brood, and 165 pounds of orange honey were extracted. On June 25 seven supers were on, containing lots of honey, brood, and bees. Can you beat it?

A beekeeper came today (July 2) to get permission from the county inspector to move his bees from an orange location to one in the San Jacinto Mountains in the eastern part of Riverside County. This last location is at an elevation of nearly 5,000 feet, and the white sage and wild buckwheat are just coming into bloom. These higher altitudes got more rain and will produce honey later than those lower down. The mountain ranges are hard to get to, as most of the roads are poor. The bee pasturage being thinly scattered over large areas makes it necessary to have small apiaries smaller and further apart than when located in the orange and bean sections.

Corona, Calif.

L. L. Andrews.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Young Queen Leaves Bees and Brood to Return Home.

The strangest and most remarkable bee behavior which ever came under my observation was witnessed in 1915. In going thru one of our colonies, we found that the bees had reared a young queen and she was laying on the same comb with her mother. The old queen appeared to us to be as good as ever and, the colony being unusually strong, we decided to divide it. We took three frames of brood with the young queen and put them on a new stand about 25 feet away from the parent colony. Three days later we looked into this new hive and found that the bees had deserted the brood and what honey was present. My partner, Mr. Marzian, and I stood and looked at each other for a moment, wondering what had happened or why those bees had absconded. He then suggested that we look at the parent colony, and see if those bees had gone back home with the young queen. Upon opening the old hive we found the young queen again on the same comb with her mother. Now did the young queen lead those bees back home or did she follow the bees back home? She had but recently mated, and it is possible that she remembered the location of the old hive and further knew that her mother was failing and that she was needed at the old home. We tried the experiment again, but this time clipped the young queen, and of course the new colony remained and built up. The old colony now built queen-cells and in due time another young queen was laying, working right along with her mother and both queens were usually found on the same comb. It being late in the season, we left both queens and hoped that the old queen might live thru the winter, but in the spring the old queen was missing.

I have never read of a case like the above, that is, of a young queen returning to the old parent colony after being put on a new stand with plenty of bees, brood, and honey. Has such a case been observed or reported by any one else?

Earl C. Walker.

New Albany, Ind.

Reaction of Bees to Colors.

There is not the slightest doubt that honeybees will sting black more than white, as has been and can easily be shown again experimentally. Let any reader dress himself wholly in white, including gloves, veil, and hat; and, after binding a wide black band around either arm, open a hive and violently shake the frames. He will at once receive overwhelming evidence that the bees will sting black more than white, for the black band will be covered with angry bees while on the white portions of his clothing there will be very few bees.

(For further experiments see Gleanings, Oct. 1, 1913, page 687.) According to my observations black or German bees do sting a black veil more than they do a white one,



This veil is made of white tulle with a square of black silk tulle inserted for the face, giving the visual features of a black veil. Not only do the bees sting this veil less than a black one but also since white reflects heat while black absorbs it, this veil is much cooler and is a decided improvement on the black veil.

and it is largely my practice to wear a white veil, altho such a veil is more difficult to see thru.

Bees also sting red more than they do white, as was well known to the beekeepers of the Middle Ages according to Edwards' "Lore of the Honey-bee." I find by experiment that this statement is entirely correct. If Frisch of Munich is right and honeybees are color-blind to red and can not, therefore, distinguish it from black, then it is entirely natural that they should react to red in the same manner as to black. But I am compelled to add that I am not entirely convinced that bees can not see red as a color.

John H. Lovell.

Waldoboro, Maine.

Uses Large Can For Sterilizing.

This year I have cleaned several hundred frames, leaving the wires in. Here is the way I do it: I bought a second-hand galvanized oil can large enough to set a hive into. In this can I placed some supports upon which the frames

HEADS OF GRAIN FROM DIFFERENT FIELDS

are piled. The supports should be high enough above the bottom so that there will be room for the melted combs beneath. I use a piece of canvas to cover the can. Anything that will make it tight will do. Two pails of water are then put into the can, the combs placed on the supports, the can covered, and a fire built under the can. The hot steam soon melts the wax on the frames; the combs become loose, and a few sharp raps on the frames while hot leave them cleaned and sterilized, ready to put new foundation into. The hot combs are stirred up well and dipped out into the wax-press.

In foul-brood cases, when sterilizing hives, supers, etc., one should leave them covered in boiling water for half an hour.

Of course, there is some wax sticking to frames and hives; but I find that the bees sometimes use a part of this, so there is practically no wax lost.

D. Gibbs.

Wapakoneta, O.

An Easy Way of Painting Hives and Supers.

When visiting one of the prominent beekeepers of the county recently I found him stacking up new supers approximately ten high, the bottom one resting on a box about 15 inches tall. He then carefully straightened the supers so they were all even and laid a piece of railroad iron on top, presumably to hold them down. My curiosity was aroused as to what was to be next, when he picked up a bucket of paint and a four-inch brush and painted that stack of supers in less time than I have seen taken to paint one super or hive body. When I saw the speed with which he did a very good job of painting it struck me as a joke to remember the painting of one super at a time and trying to keep one's hands out of the paint and then finding some convenient spot to place the painted super to dry. Of course the idea is ancient history and may have been in the bee journals times without number before; no doubt Father Langstroth did it first. But I have questioned other beekeepers and have found more than one who had never thought of it and who still wrestled with supers and hive bodies one at a time while painting them. Maybe, after all, there are a few of the younger generation who may save time by remembering that with a wide brush a stack of supers or hive bodies can be painted almost as rapidly as a single one.

J. H. Tibbs.

Fincaisle, Va.

How Queens End Their Careers.

What kind of a death a queen dies when she ends her career—this I first learned of my old tutor in 1881, when I saw a queen crawling outside of the hive. Also careful observation since that time has

confirmed what he said, that the queen when she commences to fail lays eggs in several queen-cells, allows a queen to hatch and usually remains in the hive with her for a week or two after she commences to lay. Then the old queen leaves the hive and dies. But I have found exceptions to this rule, as I have found her sometimes on the comb and a few times on the bottom-board nearly or quite dead.

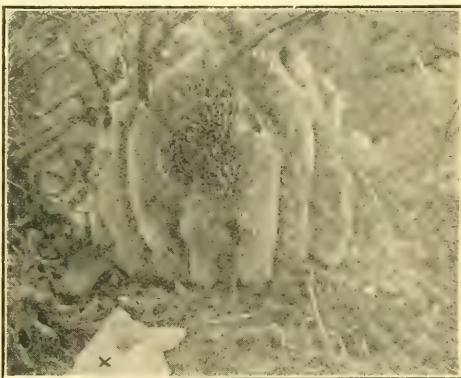
If the conditions are normal, the bees or young queen hardly ever kill her or drive her out of the hive. (If the hive were disturbed or robbers about, it would be different.) When the queen finds that she is of no more account, she does the same as an old bee does, just leaves and dies—why I do not know; perhaps she is in pain, but of this I suspect we shall never be certain.

Binghamton, N. Y.

C. W. Phelps.

How Much Room Did These Bees Need?

I inclose a print of a colony of bees located in a bush near my apiary, first discovered on the afternoon of April 30. Altho they had all outdoors for room, and the sky for a roof, they cast a swarm on the morning of May 16 while I was working in my honey-



These bees swarmed with all outdoors for room and the sky for a roof.

house, which is between the bush and the apiary. When smoking the bees back as in the inclosed print, I saw some honey in the combs. Also there is sealed brood, which is covered by bees in the evening.

San Diego, Calif.

Jas. A. Nelson.

Esparet Honey, Better Known as Sanfoin.

In the time I have been reading Gleanings (over four years now) I have never seen any mention of the honey made from esparet. This plant is grown by some of the ranchmen in this neighborhood for a

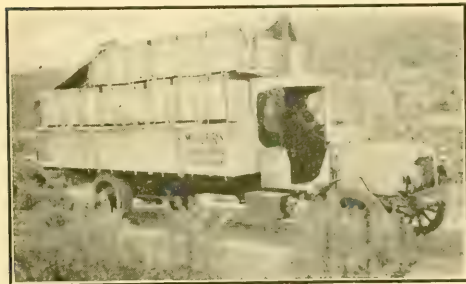
HEADS OF GRAIN FROM DIFFERENT FIELDS

forage plant. Their fields are a bright pink with its flowers shortly before I find the first alfalfa blossom. The bees seem to be working on it quite busily, and the honey that appears in the supers at that time is very nice. It is a delicate honey of a pale-yellow color that makes a pretty appearance in the section, and it does not candy readily. A few years ago one of the merchants in our nearest town sent me word that if I had "any more of that honey made from flowers—not out of alfalfa," he would like some of it. Since then he has always insisted on having yellow honey, and has explained to me that for his personal taste he finds alfalfa honey too much like granulated sugar syrup. I have suggested to him that a case of the white and a case of the yellow side by side offer a pretty contrast, and that some of his customers might choose one and some the other; but while the other local merchants do not seem to care which I bring them, he remains firm in wanting only the yellow. It was the kind of honey that we take to be esparcet, which is very superior, that first prejudiced him in favor of the yellow honey; but he does not discriminate when I take him other kinds, and we have several kinds of yellow honey. I suppose "the trade" would speak of them as amber. We get only a comparatively small amount of the white alfalfa honey, as we are at an altitude just under 8,000 feet here in the Wet Mountain Valley, and the alfalfa plant is not cultivated very extensively. It does not make as rank and rapid a growth, and therefore pay as well, as in the lower warmer altitudes.

Westcliffe, Colo. Mary T. Comstock.

[Sainfoin is raised extensively in Europe, but is not very common in our country.—Editor.]

Moves Twenty-seven Truckloads of Bees Every Year. This picture shows 96 two-story ten-frame hives of bees arriving at their new location 98 miles from their former home. We loaded this truck at sundown, started at an ele-



vation of 841 feet, passed thru one mountain range, and 4,100 feet in the second range.

The canvas on top of the bees is to keep the hot desert sun from smothering them. I move an average of 27 truckloads of this size every year, and never lose a colony. I never sprinkle the bees with water, for every one I gave the least bit to always smothered. It does not pay to haul bees such a long distance unless you are sure of a large crop of honey. The largest percentage of my bees are in three-story ten-frame hives, which I believe is the best hive for this locality; but it does not pay to haul three-story hives so far. A. E. Lusher.

Pasadena, Calif.

Thinks Everyone Should Keep Bees. Everybody ought to keep bees, it seems to me. We started with a runaway swarm which came from a public building. The bees pollinize our fruit and



Apiary of Cora June Sheppard.

furnish us no end of sweets. I do all my canning and preserving with extracted honey; and during the war I used honey for cake, and liked its flavor and keeping qualities. We also made icecream with honey. We learned to get along without sugar during the war. The bees have proved to be wonderfully interesting, and last season they supplied us with \$90 worth of honey.

Shiloh, N. J. Cora June Sheppard.

Summering Difficult I think the term "summering" will be

a new one to you.

There is no flower for the bees, unless in an exceptional locality, thruout the summer months in Japan, especially in the middle and southern parts of the country, altho any kind of garden flowers is scarcely ever to be seen.

There is some continuance of rainy weather almost day by day during 30 days in early or middle summer. It is not so hot as to melt the combs in hives; but wax moths have a chance to breed.

Suppose, how will the bees do without any pollen and nectar to gather, and with so

HEADS OF GRAIN FROM DIFFERENT FIELDS

long a period of rainy weather. The summering must be the most important and most difficult problem in place of wintering for us. Of course, the feeding of sugar syrup, combs of honey, and supplying artificial pollen may be done, but that is expensive. If the colonies are left with plenty of breeding room and plenty of stores, breeding produces a great many bees and this uses much honey. Some practice going with their bees for another honey flow in the north part of the country or any other special locality. Some practice destroying superfluous bees out of necessity to carry thru the bees' strength for autumn increasing.

In place of destroying those superfluous bees, some are intending lately to sell in pound packages to any fellow beekeeper in their locality. Other beekeepers make, with superfluous bees, a new colony, and some allow wax production in a new hive without giving any comb foundation; and there are some expert beekeepers who practice to prevent or to control breeding and egg-laying in the honey season by using a queen-cage. In place of the queen-cage some experts use a queen-excluder between the super and brood-box, and two frame-shaped queen-excluders in the brood-chamber to limit the queen's laying to one, two, or three combs.

Moreover, some experts manage with virgin queens in the place of fertilized queens during the honey-harvesting season. Some even dequeen the colony, altho there are some troubles with queen-cells, and derogation of bees' spirit to work. At all events, it is believed that is an effective and profitable plan for extracted-honey production and "summering" of bees, because non-breeding or limiting of laying is an economy of the bees' energy, utilizing the breeding force to the gathering of honey and increasing hive capacity by supplying so many comb cells without brood. Therefore the smaller force of bees to pass the summer months is economy. Is it not so?

But the colony, being reduced in numbers of bees, must be increased for autumn work upon fall flowers, and to go wintering with abundant stores and a multitudinous force. To do this, of course we treat them as in spring.

Summering, autumning, wintering, and springing ought to be done well, of course. In some localities, as in our own, "summering" should be considered as a real problem at least. Is it not so?

Yasuo Hiratsuka.

Tara, Gifu-ken, Japan.



THE BACK LOT BUZZER.

Ma says she wishes they'd hurry up and settle who's goin' to be queen in that hive by the apple tree. They've swarmed so often that there is nothin' left in the old home but Bolsheviks.

"THE bee-keeping fraternity, I think, should appreciate the article of Mr. Joseph H. Peterson of Garland, Utah, under the head, 'It Works Very Satisfactorily,' in April, 1919, *Gleanings*, page 227. His method is decidedly the most satisfactory I have ever used for fastening foundation in frames. He does not name the tool he describes, and I wish to suggest 'Sticker' as a good name. It is short and appropriate. Any one can make a sticker. I made one from a piece of scrubby cedar I cut several years ago on top of Stone Mountain near Atlanta as a souvenir, and it works fine. Choose a hot day for using the sticker, and have the cup of water handy, as suggested by Mr. Peterson, to keep the foundation from sticking to the sticker."—L. K. Smith, Carroll County, Ga.

"Has it ever happened for any one else that a queen was received in a shipment of honey. I received from Florida a seventeen-case shipment of section honey, and upon opening it found a virgin queen running around as spry as a cricket. I had a queenless colony, so I introduced her successfully, and now have a fine yellow prolific layer. She is a beauty."—G. E. Leavitt, Hamilton County, Tenn.

"E. G. Norton, a progressive beekeeper of Nevada, produced over \$32,000 worth of honey from 600 colonies last season, or an average of \$53.33 per colony. Some people are rather skeptical as to the chances of 'making good' in the bee business. In fact, one man told me that it was rather a risky business to enter. As far as I can see personally, more money is made out of bees for the amount of capital invested than from any other established business in the world."—Bevan L. Hugh, Santa Clara County, Calif.

"About 20 years ago I was a cripple as the result of muscular rheumatism. I was advised to keep bees, which I did. After handling them one year and getting stung a number of times, the rheumatism left me. I had bees for five years, and I had no pain. I quit for two years, and the rheumatism came back. At once I bought some more bees and have never had rheumatism since. I have doctored with the best doctors this State has, but the only cure found is bee-stings. One of my hives this day has 32 pounds of capped honey on top of the hive body, and I put on another super."—Gillmore O. Bush, Orange County, N. Y.

"About two weeks ago I visited the rice mill at Beaumont. Going down the platform I noticed quite a few bees flying around. Upon investigation I discovered that they were working in the end of a box

BEES, MEN AND THINGS

(You may find it here)

car. The men on the platform said that the car had just been set in that morning. After prying off one of the boards we found that they had a large brood-nest

and a lot of surplus. I have wondered if the car had been on a siding for some time to allow the bees to accumulate the stores, or if the coming brood was sufficient to keep the colony working while the car was being moved from place to place. I never saw nor heard of a similar incident.—C. H. Deabler, Hardin County, Tex.

"One day while getting a hive ready for bees, a number of bees came flying about the empty hive. Thinking it a good plan I set the hive down to let the bees clean out the little honey that remained, and thus have it nice and clean for the ones ordered; but the bees never left, and in less than one hour the hive was occupied by a strong colony. Three days afterward I moved the hive to a permanent stand. Two days later bees were flying in great numbers over the same spot, so I brought another empty hive and set it down with the same results. Immediately the hive was occupied by a strong colony. This makes two strong colonies. Each came the same way and on the same place."—Edwin F. Kuhn, Cumberland County, N. J.

"Crop conditions in this section—clover, none; honeydew and dark (yellow) honey, liberal enough only to keep the bees breeding and spoil the clover honey (if there had been any)."—Chas. F. Hoser, Montgomery County, Pa.

"Yesterday I was in a red-clover field and heard bees humming. I watched and found that they were working on the red clover. In a short time I found that they were working on imperfect heads. There were a great number of grasshoppers in the field, and they had eaten the bloom to some extent. Where the heads were eaten the bees were able to get their tongues down to the nectar. At times they hesitated at a perfect head, but seemed to know at once that it was no use and passed on. So far this is a poor year in this locality. The bees are fine, but they have gathered no surplus. There is some white clover—in some places enough to give a whitish cast to the ground, but there are no bees on it."—R. R. Ramsey, Monroe County, Ind.

"Thanks for the ingenious smoker which we found of great help during the present epidemic of influenza. It is an ideal apparatus for aeration in hospitals, sanitariums, and in private homes. Several families having fallen suddenly ill at once, I took two smokers and stuffed them with dry eucalyptus leaves. I then went to the bed-

side of the invalids on all sides and at all hours, running from ranch to ranch, throwing out clouds of smoke which the patients received thankfully. No danger of fire anywhere. Having performed this arduous work among the stricken people, none of them died but all were benefited. An amount of aromatic and balsamic substances was doubtless absorbed by the patients. One could notice a gratifying diminution in the coughing experienced by children and all other patients. When a doctor can not be had, and one is isolated in the country, this treatment would prove of great benefit."—Pedro Flores Gomar, Acatanango, Guatemala, Central America.

"I noticed in Gleanings a discussion in regard to blowing into 60-pound cans to test them for leaks. Why not just screw the cap on tight and then place the cans in boiling water? The air inside will expand instantly and give the can all the test it needs."—Wm. C. Kelsey, Cook County, Ill.

"Unless we have large quantities of old combs to render, and are equipped with a regular manufacturer's outfit, the use of a wax-press is not at all necessary. Twice boiling and once remelting in a water-jacket, with a little scraping of the dark sediment from the bottom of the cake will extract practically all the wax and produce a first-class merchantable article."—G. C. Greiner, Niagara County, N. Y.

"I would have replied earlier to the question, 'Does beekeeping pay where beekeeping conditions are ordinarily favorable?' but I was 'too busy making beekeeping pay' to find time to collect my thoughts sufficiently to write a few readable sentences. I am convinced that the nature of a person has a great deal to do with his success in any field of endeavor; and unless a person follows an occupation that appeals to him he is more than likely to be unsuccessful—certainly not eminently successful. Undoubtedly, there are many people not fitted by nature to be good beekeepers, and to whom the occupation of beekeeping does not appeal, while others may almost be classed as **natural** beekeepers. I believe that, unless a person loves bees and likes to work with them, the probability of his making much money from them is very slight. But if, in addition to a natural aptitude for this work, a person has sufficient executive ability to care for bees in one or two out-apiaries there would seem to be no reason why that person, in proportion to the time and money expended, should not make more in beekeeping than in almost any other business, and do this in congenial environment and amid healthful surroundings."—Elton Warner, Buncombe County, N. C.

"Mr. George Launey, a prominent young cotton man of Savannah, has demonstrated that this intangible something called 'bee fever' is contagious. Recently he purchased three box gums of fine Italians from a lady

of Savannah. He obtained from the supply man several hives in order to transfer his pcts to modern homes. He took the 'paraphernalia' up to the big office where he is employed, and soon had the whole force busy assisting in setting up the hives and supers. All were busy, when, presto! who should walk in but the boss? Did he fuss? Not a bit of it. He looked on for a while in silence, and then he grabbed a hammer and went to work too, and in the meanwhile told in broad Scottish accents of the old-time ways bees were kept in the 'auld country.'"—L. W. Chovatt, Chatham County, Ga.

"This is a great valley with 40,000 acres of irrigated land which abounds with alfalfa and sweet clover. B. M. Caraway of Mathis, Tex., is the only extensive beeman here. He has a nice start of 1,000 colonies. Bees have come thru in fine condition."—D. F. Leonard, Wyoming.

"Recently an unclipped queen was in the act of making her escape, and she would probably have been followed by the swarm; but I quickly put a dab of honey on her wings and the flight was all off."—Sam Houston, Orleans County, La.

"I have some colonies that have stored honey wonderfully, two of them having five supers full, and our best honey flow has not yet started."—T. W. Gentry, Stokes County, N. C.

"I have fought both American and European foul brood; and, with the assistance of our able inspector, J. E. Crane, have stamped them out and have had no sign of either for three years."—C. H. Crofut, Bennington County, Vt.

"This is the driest May and June in the memory of the oldest settlers here in central Montana. In a radius of two miles our bees can reach nearly a thousand acres of alfalfa and sweet clover which, on account of the drouth, have not yet begun blooming. The prospects are very poor."—A. E. Trapp, Fergus County, Mont.

"I have always heard it said among beemen that they had never seen foul brood in a bee-tree. I myself have been a bee-hunter all my life, and I have made a close examination in every tree that I have cut, and I had never seen a bee-tree affected with the disease until the other day. We cut down a bee-tree with the intention of transferring the bees to a hive. They were black bees, and had the worst case of foul brood I ever saw."—Henry S. Bohon, Roanoke County, Va.

"If I had not fed 500 pounds of sugar to my bees in the spring I should not have secured half a crop, as the colonies were slow to do more than build up. Those that had enough in the spring and were not fed, did not do as well as those that were fed liberally to stimulate brood-rearing."—Judson Jones, Putnam County, O.

"I noticed a knot on a black-gum tree and spoke of the striking resemblance it bore to a cluster of bees. I was told that an old man who formerly lived in that community and kept bees, kept also one of those gum knots, on a pole, which he called his bee-knot. When the bees would swarm out the old man would set up his pole with the knot among or near the swarming bees. The knot at a short distance presents exactly the general appearance of a cluster of bees. When a few bees light on the knot it has the appearance of a large cluster, and the statement of my informant was that the bees usually would form a cluster covering the knot. The old man would then shake them off into the hive or near it. He thus saved swarms which might otherwise have run away, and also saved himself the trouble of hiving them from inaccessible places."—W. B. Romine, Giles County, Tenn.

"A cousin of mine has some very mean black bees. Last year he got a neighbor to hive them for him. They just simply ate him up, and, of course, he lost his job. This year I got the invitation to try them. So I read up in the bee book on points that I needed, and particularly on opening hives. I prepared for the bees just as nearly as the good book said—opened the hive, got all the honey, put the super and top back, and stayed by them as long as I wanted to, and went back in the house with lots of nice comb honey, and not a bee offered to sting. The owner of the bees stood in the house looking out the window. I know that, from reading the bee papers I'm taking, I know very little about bees; but I'm very much interested, and I'm going to learn lots more."—L. J. Davidson, York County, S. C.

"I still have some American foul brood. Nearly all the bees here have died from it. I have written the State and Federal authorities about it repeatedly; but while they are suggesting educating the beekeeper to get rid of it, it is still getting worse."—J. E. Turner, Darke County, O.

"In Tasmania the bees this season made a splendid start, but they made a bad finish. I am afraid a lot will have to be fed to carry them thru the winter."—John H. Jenkins, Hobart, Tasmania.

"We got 416 pounds of honey from one swarm when we had but the one swarm, and those bees lived in the same hive without renewal of any kind for 24 years, when the hive rotted."—Lloyd Z. Jones, Henry County, Ill.

"Popular talks and actual demonstrations at our central apiaries by competent and experienced beekeepers are much needed in Nebraska over much of the State. There has been a wonderful improvement in the possibilities of scientific bee culture in Nebraska in the last ten years, largely owing to the extension of sweet clover. This

hardy legume is adapted to a great variety of soils. It is a soil-builder, and will probably have a recognized place in the rotation of crops on the best-conducted farms of central and western Nebraska and Kansas. The much-execrated beeman of 30 to 50 years ago, who sowed sweet clover by stealth after dark at the risk of personal danger if detected, is now considered a public benefactor in this section of the State. The trans-Missouri region is now indeed a land flowing with milk and honey, as both are being pushed to profitable extension and conservation. Popular field meets are essential in every county of the State till the losses of bees in wintering will be as rare as the loss of good dairy cows from starvation."—Karl Aldrich, Nemaha County, Neb.

"Merrills vs. Goodwin: A man's finding a tree of bees in another man's land gives no right to the tree or the bees, unless they went from his own hive. Error to reverse a judgment of a justice in an action of trespass, Goodwin vs. Merrills, for cutting down a tree in the woods that had a swarm of bees in it and taking the honey which the plaintiff had previously discovered. The defendant pleaded in bar that said bees were a swarm from his hive; that he frequently lined them to near said tree; and that said bees were his property. The plaintiff replied that he found the bees in the woods and had good right to take them. To which reply a demurrer was given. The judgment of the justice was that the plaintiff's reply was sufficient, with 30 shillings damages. Judgment—Manifest error. By the Court: A man's finding bees in a tree standing upon another man's land gives him no right either to the tree or the bees; and a swarm of bees going from a hive, if they can be followed and known, are not lost to the owner but may be reclaimed."—From Root's Reports, Vol. I, 1764-1793, Litchfield County, August Term, Superior Court, A. D., 1790.

"Our librarian told me Saturday that it was impossible to keep any bee books on the shelves so great was the demand for bee literature."—S. H. Burton, Daviess County, Ind.

"I have obtained a crop of honeydew of the usual dark color, **which granulated immediately**. Ants on removing it leave a white, almost tasteless powder, which would seem to show that the granular portion is not all sugar. It was gathered principally from oak and beech."—H. D. Tennent, Morgan County, O.

"I have met beekeepers 150 miles east and also west of Phoenix. Regarding the honey-producing part of Arizona, they report only one-sixth to one-fourth of a crop. My 19 apiaries are located 55 miles up and down the Gila River. Half of my yards have no honey to extract. Small insects suck the nectar from alfalfa as fast as secreted."—B. A. Hadsell, Maricopa County, Ariz.

NOSEMA *apis*, says G. F. White in the July American Bee Journal, was reported as long ago as 1857. The germ that causes the disease is a

one-celled animal parasite. This parasite has a vegetative form and a resting spore form. When the latter forms are taken into the stomach of the adult bee, with the food or water, the digestive fluids act on the covering of the spores and release the young parasites that then invade the wall of the stomach, where they multiply enormously, producing quantities of spores which are voided with the excrement, thus becoming a source of infection to other bees.

In the experimental yard, when inoculating for the disease, Mr. White says the colonies were fed a pint of sugar syrup to which had been added the crushed stomachs of diseased bees. Most of those which became infected were middle-aged bees. In outward appearance such bees are quite normal, but the diseased stomach is lighter in appearance than a healthy one. It is more easily torn, and when crushed it has a milky appearance. In a late stage of the disease the walls of the stomach are white.

Altho *Nosema apis* under certain conditions may kill a colony, still the disease is not very infectious, and the usual effect is simply to cause a weakness from which the colony readily recovers.

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Saving a few cents in the cost of a shipping-container at the expense of higher freight rates is poor economy.—American Bee Journal (July).

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Thru the instrumentality of the Tupelo Honey Exchange, according to the Dixie Beekeeper for June, the Legislature of Florida has made an appropriation of \$10,000 for inspection work in the State.

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It has been estimated that there is more profit, with less investment and labor, in 300 colonies of bees than in 160 acres of farm land.—The Beekeepers' Item (July).

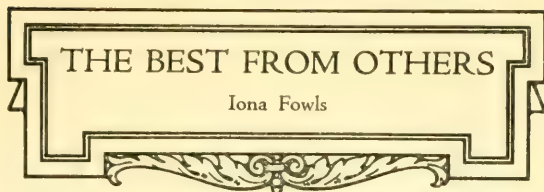
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I believe the price of section honey is going to rule high for some time to come, and pay well those who are willing to produce, pack, and market it with care.—J. E. Crane, American Bee Journal (July).

* * *

HOW ROBEY REARS QUEENS.

E. G. Carr, in the July American Bee Journal, explains how Robey raises queens. To prepare the cell-starting colony he moves it from its stand, replacing with a hive of four combs of honey and pollen and one of brood: Four combs of bees from the re-



Iona Fowls

moved colony are shaken into the prepared hive, and in five hours fifteen grafted cells are given after removing the frame of brood.

(These grafted

cells are Doolittle cell cups into which, after priming, are grafted very small larvæ.) The next morning the started cells are given to the upper story of a strong colony for completion. When the queen-cells are ripe, they are given to nuclei, containing two or three frames, the frames being of such a size that three will just fit into a Langstroth frame. Mr. Robey uses some twin mating-hives and some hives containing four nuclei. The small frames are stocked by placing in bodies of such a size as to carry twelve frames crosswise, two such bodies being used as a colony.

To insure well-fed larvæ late in the season he removes the larvæ after they have been fed two days, and replaces with very small larvæ, shaving down the cups with a hot sharp knife. The larger size of the resultant queens pays well for the extra trouble.

* * *

Another season's experience in hiving swarms, both natural and "shook," with an empty body below the frames of foundation, convinces me of the value of the method in preventing absconding swarms. A swarm, immediately after hiving, needs a large quantity of wax, and the opportunity to cluster compactly with no division of the cluster by frames or combs, seems to facilitate the secretion of wax. I have never known a swarm to abscond when hived in this way.—The Western Honey Bee (July).

* * *

Colonies which have been transported from one spot to another some distance away in the spring show more activity than others that have remained at the old stand. There appears to be something in the change of surroundings or in the shaking-up which they have experienced which impels them to greater activity.—American Bee Journal (July).

[We have often noticed that bees moved in the spring breed up faster than others, and are, therefore, in better condition for the honey flow.—Editor.]

* * *

We may need larger brood-nests; yes, but let us make them by adding a second story, thus giving the queen the room she needs just where she needs it. Especially is this desirable when using 8-frame hives. With me, this practice greatly decreases manipulation, as well as the propensity to swarm. One scattering of the brood after the second story has been on a few days, is usually sufficient.—The Western Honey Bee (July).

QUESTION.—I have a stock of bees that originated from an apiary that was Italianized about 40 years ago. During all that time these bees have never been stationed closer than a mile and a half from other bees. Under such conditions what is the probability of my bees having become mixed with other breeds, thereby needing to be Italianized again? They are clearly marked as the Italian bees are described. G. M. Depew. Kentucky.

Answer.—It is indeed remarkable if you have been able to keep your Italian bees pure without requeening for that length of time. We would certainly expect them to mix with hybrids or blacks if there are such bees within a mile and a half.

Question.—My bees cut wax foundation along the wires. What can I do to stop them? Michigan. Maurice Geary.

Answer.—It is possible that the wires were imbedded too deeply in the foundation. This sometimes causes bees to cut the foundation along the wire; or it may be that no honey was coming in at the time the foundation was given. In such a case the feeding of a sugar syrup until the foundation is partly drawn would prevent the bees from gnawing the foundation.

Questions.—(1) Will you please advise me as to keeping my colonies so close that their hives almost touch each other? Is it better to place them some distance apart? (2) Will keeping them in the sun hinder them from working? (3) Is it necessary to use an inner cover next to the roof, either with sections or extracting frames? Alabama. Geo. P. Smith.

Answers.—(1) It is advisable to have the hives a short distance apart. If too close the bees sometimes become confused and go into the wrong hive. Young queens are easily lost in this way. In our apiaries we like the hives at least six feet apart, and doubtless a little further would be better. (2) Some shade during the hottest part of the day is desirable. If too hot, the bees often loaf, and we have known them to swarm and leave in very hot weather when a little shade would have remedied the trouble. (3) An inner cover should be used as well as the outer for either section or extracted-honey production.

Questions.—(1) It is sometimes recommended not to put in all the frames of full sheets of foundation at one time lest it discourage the bees. Should the vacant space be left in the middle or at one side? (2) Please tell me the common prices for extracting a neighbor's honey. Alabama. Wiley Gentry.

Answers.—(1) Any good colony ought not to be discouraged by giving a full set of frames of foundation. However, it is better to insert one or two frames of drawn comb in the center, for this will give the queen a place to lay at the very start, and the bees will be much more inclined to be satisfied. If possible it would be well to insert a frame containing some young brood. The

GLEANED BY ASKING

Iona Fowls

colony would not be nearly so apt to swarm out. When giving frames to nuclei the frames are usually crowded over to one side of the hive; but in no

case should one leave a vacant space in the middle of the hive, nor should one ever leave a space in the hive of a full colony, since the bees would be certain to fill the space with crooked comb. If foundation is given when no honey is coming in, it will be necessary to feed in order to get the foundation drawn into comb. (2) About two cents a pound would be a fair price for extracting a neighbor's honey. At this price it would be a paying transaction for both parties.

Question.—I am sending you a fly which I caught. These flies take a bee around the body with their legs and hug them tight, and seem to have a bill which they drive into the back of the bee and then eat it. They take bees in the air also, and take them off the board in front of the hive. There are many of them here, and I am afraid they will kill the bees out here in this territory. They also bury the bees and keep doing it all the day. Is there any way to stop it? Kansas. Charles Engelman.

Answer.—This is a species of the dragon fly. They are rather troublesome throughout the South. Aside from moving the apiary we know of no way of stopping the trouble.

Questions.—(1) Do clipped queens ever grow new wings? I clipped mine about two months ago, and had to clip again recently, but I imagine she has been superseded. (2) Is it possible to make increase after the honey flow in the fall? New York. Arthur M. Cole.

Answers.—(1) Queens do not grow new wings after they have been clipped. Your queen was evidently superseded. (2) It is possible to make increase after the main honey flow in the summer; but after the fall flow it would be rather late, and unless your colonies are remarkably large ones we would hardly advise this. The division should be made in time so that the colonies may arrange their brood-nests for winter.

Question.—I had a swarm the other day, and put it in a new hive on the old stand, moving the old one away. In half an hour another swarm came from another hive and clustered on the fence. When it came back to the yard it went straight in with that other swarm, and did not go near the hive it came from. Why was this? During the ten years I have kept bees they never did this before. Pennsylvania. C. Shindlecker.

Answer.—Swarming bees from different colonies often join each other, not seeming to distinguish their own swarm from any other. It is possible that a few stragglers were still going into that new hive, and this swarm noticed it and went in with them. Or it may be that they heard those bees and recognized them as swarming bees and therefore joined them.

Questions.—(1) Why do you and others recommend a black veil, at the same time stating that bees detest black, and say that black clothes, par-

ticularly a black hat, should never be worn? (2) If for any reason one desired to place an empty brood chamber under one occupied already by the bees, when, if ever, would the bees go to work in the lower empty chamber? (3) In the second and later swarms do the queens leave the old hive supplied with eggs and brood?

G. W. Johnson.

Maine.

Answers.—The principal reason that the black veil is used is because it is less trying on the eyes. However, a white veil with a piece of black across the face, in the line of vision, proves much cooler than the black veil, and we have found it quite satisfactory. (2) Bees naturally store honey above, and therefore, during a honey flow, they would be likely to crowd the queen out of the upper story into the lower one and fill the upper one with honey. (3) Usually, and with capped queen-cells.

ANSWERS BY J. H. LOVELL.

Question.—This year the sugar company will have several acres of sugar beets which they are putting out for seed. Can you tell me whether the sugar-beet blossoms yield nectar or pollen for bees? If nectar, can you tell me anything of its value as a honey plant, or of the quality of honey made from it?

W. L. Walling.

Montana.

Answer.—The small greenish flowers of the beet have a pungent fragrance, but yield little nectar. There is a great abundance of pollen. The bloom is visited chiefly by small flies and bees, but not frequently by these. Visits by honeybees are rare. In Utah, thrips (tiny insects) visit the flowers in large numbers, as many as 190 having been collected from one small raceme. As there are many pollen grains scattered over their bodies, they doubtless often effect pollination. Observations extending over five years showed that the visits of larger insects were few. The beet is, however, dependent on insects for cross-pollination, as the flowers are self-sterile.

Question.—I have searched all my bee books that treat on honey plants, and I have failed to find mentioned there the plant my bees are working on. I should be pleased if you would write something about this plant. Its name is pleurisy root (*Asclepias tuberosa*). It is also called butterfly weed. The bees work on it all the time, and it stays in bloom about six weeks or longer; but there is not very much of it here.

G. L. Perry.

Texas.

Answer.—Butterfly weed, or pleurisy root (*Asclepias tuberosa* L.) grows wild from Maine and Ontario southward to Florida and Texas. It is called butterfly weed because it is adapted to pollination by butterflies, which visit the flowers so frequently as to attract attention. More than a dozen different kinds have been captured while feeding on the nectar. The slender awl-shaped horns, or nectaries, are so long that only insects with long slender tongues can suck up all the nectar. Honeybees and some wild bees also resort to the flowers. The plant gets the name pleurisy root because a decoction administered several times a day affords relief in pleurisy, catarrh, pneumonia, and pulmonary complaints. Under favorable conditions the milkweeds secrete

nectar freely, and colonies have been reported to store 10 or more pounds per day for a week or two. The honey is water-white, and possesses an excellent flavor and a heavy body. They bloom from the last of June to August. The milkweeds are usually classed as noxious weeds, and directions are given for their eradication; but in most localities they appear to be harmless. Some farmers claim them beneficial to the soil. The seed germinates readily, but the young plants are reported to be rather tender. If the soil and climate are suitable, the plants will be likely to multiply rapidly without any attention. The common milkweed (*Asclepias syriaca*) is the species most valuable to beekeepers, and, if any species are cultivated, would seem to be the most desirable. I would not recommend the butterfly weed for this purpose, as the horns or nectaries are so long that honeybees are probably able to gather only a part of the nectar. If the supply is scanty they might not be able to obtain any of it. If it is desired to cultivate some one plant for honey, sweet clover or alsike clover would seem to be the most suitable.

ANSWER BY DR. C. C. MILLER.

Question.—In June Gleanings, page 389, Miss Fowls recommends as a swarm prevention a plan of yours. Is this a modified form of your excluder plan of treatment in "Fifty Years Among the Bees?" In this new plan what is to prevent the queen in the upper hive from swarming out in a day or two? She states that the colony will be so weakened by the loss of field bees that the idea of swarming will be abandoned. This hive is no more weakened thru the loss of its field bees than any hive would be after a natural swarm, and still we have secondary swarms from such hives.

Herbert Schulz.

Answer.—The plan Miss Fowls gives is the "put-up plan" given in "Fifty Years," and is not a prevention of swarming, but a treatment to keep the forces together after swarming. Either Miss Fowls or the printer has made a mistake that might be serious. She has the queen put up any time within 10 days after swarming. That should be 5 days, for if left 10 days a virgin would be likely to emerge and go off with a swarm. [An error of the proofreaders.—Editor.] You think because there are after-swarms in ordinary natural swarming, there should be swarming in the present case. The two are quite different. In the one case a lot of sealed brood has been turning into bees for the past week or so, there is the vigor of increasing strength, plenty of honey is coming in, and everything looks promising. In the other case there is the present feeling of vastly decreased numbers, not a drop of honey is coming in, and everything threatens disaster. In the one case there is a giddy young virgin, ready to go with a corporal's guard; in the other an experienced matron that would scorn to go with anything less than a strong force. At any rate, as I have proven hundreds of times, it is as Miss Fowls says, the panic-stricken bees tear down all cells, and all thought of swarming is given up.

Immediately after the main honey flow the bees will require but very little attention. The colonies should, however, be examined to make certain that each is in normal condition, and has plenty of stores and a good queen. Some colonies during the honey flow have the brood-chamber so filled with brood that nearly all of the honey is crowded into the supers above. If not attended to right after the flow, such colonies may be in actual need.

Need of Brood-rearing.

Because of a lack of stores or a lack of energy in the queen, caused by excessive egg-laying earlier in the season, queens sometimes almost cease laying at this time of the year. The beekeeper can ill afford to permit this state of affairs, for successful wintering demands plenty of young bees; and since it requires five weeks from the egg to the mature field bee it is evident that many eggs should be laid the last of August and the first part of September in order that the old worn-out bees may be replaced by young ones that have had the opportunity for a number of good flights before cold weather. This time which applies in the clover regions will vary, of course, in other latitudes.

Requeening.

Any beginner who has, not already requeened with good Italians should do so this month. His best plan is to purchase untested queens from a reliable breeder; yet if he has a number of colonies and wishes to experiment raising queens some easy way, we suggest the following plan:

Select a fairly strong colony of bees, preferably hybrids, and remove their queen. Feed them one pint of thin syrup a day, unless there is a good honey flow at the time. Three days later go to the colony containing your best queen and remove a frame containing no brood. Then move part of the frames over, leaving a space in the center of the brood-nest. In this space insert an empty drawn comb that is clean and bright. Six days after making the first colony queenless, destroy all of their queen-cells and give them from the Italian colony this frame, which should contain eggs at this time. In the part of this comb where the eggs are laid, cut out two long horizontal strips of comb about one inch wide. Along the tops of the spaces thus made the bees will build nice straight queen-cells.

On the eighth day after this colony has received the comb, remove the queens from all of the colonies to be requeened. Two days later carefully cut out the queen-cells from the prepared comb and place them in spiral cell-protectors and distribute to the

TALKS TO BEGINNERS

By Iona Fowls

and should be found laying eight to twelve days later.

Care of Comb Honey.

Getting the honey in marketable condition will be an easy task for one with but two or three colonies. The sections should be removed from the super, and all wax and propolis scraped from the exposed surfaces of the wood. If the knife slips ever so slightly, the beautiful surface of the comb may be marred so that extreme care will need to be taken when handling the sections. The beginner will need no shipping-cases, since his best plan will be to dispose of his honey to his neighbors and friends. If any is to be kept during the winter it should be put in a warm room—preferably between 70 and 80 degrees.

Preparing Extracted Honey for Market.

The extracted honey may be kept in large cans until needed for market. It may then be run into one-pound glass jars or into larger or smaller jars if the local trade demands it. A clear colorless glass should be chosen in order that none of the beauty be lost. If one will fill such a jar with some of his best honey, and place it in the window where the sunlight may strike thru, showing the honey in all its sparkling beauty, he will never be guilty of using a green glass such as is ordinarily used in canning. There is no reason why a small producer should sell at a low price. His article should command as high a price as that of the large producer, if not higher.

No Robbing During the Honey Flow.

During a heavy flow of honey it is sometimes possible to leave honey exposed right in the apiary, and yet no robbing result. Last summer, during a good flow, we left a broken and dripping comb of honey on top of a hive for several hours, and yet not a bee touched it, so industriously did they work on the fields of clover. This ignoring of the exposed honey may be partly due to the counter-attraction of the loud humming of bees at work on the nectar, but more likely to the behavior of the other bees and to the distinct and alluring trails of aroma left by the bees in their flights from the fields.

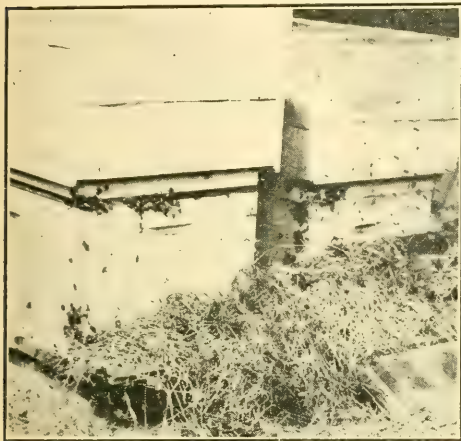
Time of Robbing.

The bees show no inclination to rob during a good flow; yet as soon as the flow ceases they are on the alert for any sweets within reach; and when a heavy flow stops suddenly we have often seen the bees scouring the whole neighborhood in search of

queenless colonies, hanging each cell in the center of the brood-nest, where it will be kept warm. These virgins should hatch in about three days,

more nectar. If a door or window of the honey-house is left open, the bees find it without delay.

Not only when the flow ceases, but at any time during a dearth of nectar, exposed sweets soon start the bees to robbing. It is rather puzzling to understand why no robbing results when nature exposes her sweets in the form of acres and acres of nectar-laden flowers. Yet thin nectar never causes the intense excitement of exposed honey. During a dearth, when bees find pure honey, absolutely free for the taking, they become intensely and wildly excited,



Grass thrown loosely in front of the entrance and kept dampened helps to stop robbing.

and rush thru the air in a mad frenzy to and from the honey and hive. Unless steps are immediately taken to stop the trouble, the high keynote of the demoralized robbers soon attracts the bees from other colonies, and thus the numbers increase at an amazing rate until the entire apiary is in a fearful turmoil. Angry bees may be seen fighting, curling up and stinging each other, or stinging any person who may chance to be near.

Robbing Weak Colonies.

Not always do bees rob as furiously as this. Sometimes a weak or perhaps a queenless colony, because of its defenselessness, is plundered by robbers from some of its prosperous neighbors. Such robbing may begin in a very quiet way, but is likely to develop into more serious robbing before the fracas is over. After the bees have robbed out a colony in this way they usually make a similar attempt at every other entrance in the yard, hoping to find another as defenseless as the first.

Bees at Play.

This quiet robbing we have just described should not be confused with bees at play. When young bees fly for the first time it is very important that they recognize their hive upon their return; therefore they fly in circles in front of the hive, learning to recognize it from every angle. This may be

noticed during the middle hours of a summer day, yet a close observation will show no real robbing—only a happy circling about in front of the hives.

How to Recognize Robbers.

After once witnessing a bad case of robbing in full progress, the high-pitched note and swift, rapid flight of the vicious, demoralized bees, one would have no difficulty in again recognizing the trouble; but it is quite important that he be able to do so at the very start when it is comparatively easy to stop the trouble. Whenever the beginner notes any unusual activity in front of a hive, he should determine whether it is the beginning of robbing or only bees at play. If robbing, there will often be a few bees, some of them dark, shiny-looking ones, attempting to enter the hive while alert guards stationed at the entrance will be most vigorously challenging their right to enter—often grabbing them and pulling them from the hive, perhaps curling up and whirling about on the entrance board, attempting to sting the intruders.

When a colony is being robbed out, bees may be seen running up the front of the hive and then, as they take wing, falling a little in their flight because of their heavy loads. Young bees often run up the fronts of the hives in this way, yet their flight is much lighter. If there is any doubt in the beginner's mind as to whether such bees are robbing, he should catch one and determine whether or not she is carrying a load of honey.

Seriousness of Robbing.

Robbing should never be tolerated. Not only are great numbers of bees killed but sometimes entire colonies are destroyed, especially nuclei too weak to defend themselves. No matter what the source of supply, when it is exhausted the robbers will attempt to rob out their weak neighbors, and after robbing has once occurred it is much more likely to be repeated. Also, if there are any diseased colonies in the neighborhood, these are the very ones that will be most likely to be robbed and thus the disease spread. If it is absolutely necessary to work with bees when they seem inclined to rob, a netting bee-tent should be used, large enough to cover hive and beekeeper.

To Stop Robbing.

In mild cases of robbing, the entrances should be contracted, and over the fronts of the hives that are being robbed grass should be thrown loosely and kept dampened.

If a colony seems quite unable to defend itself, it should be placed in the cellar for a day or two, and a hive containing a small amount of honey left in its place. As soon as the robbers have used up this honey they will quiet down; while if no honey were left they would begin robbing another hive.

When only one colony is doing the robbing, perhaps the easiest and best way of meeting the difficulty is to change places with the robbed and the robbing colonies.

H. B. PARKS has resigned his position as extension apiculturist and has accepted a position with the Experiment Station as apiculturist at

College Station, effective July 1, 1919. In this work Mr. Parks will have charge of the experimental apiaries as a result of a special legislation recently enacted. Communications to Mr. Parks in the future should be addressed to the Experiment Station, College Station, Texas.

Dr. Ernest Kohn of Grover Hill has received 300 colonies from the tupelo region in Florida. These colonies, since arrival, have been storing part of the time from 12 to 20 pounds of clover honey per day. At the end of the season they will be returned to the Florida fields.

An enterprise of considerable interest to beekeepers is to be launched at Pasco, Wash., under the auspices of the Chamber of Commerce. A joint stock company will be organized by the members of the chamber to establish and conduct an apiary on a considerable scale. The idea is to supply pure-bred queens to improve the strains for the district of which Pasco is the center, which is regarded as especially well adapted for honey production. The plan provides for a distribution of possible profits between shareholders and a fund from which educational loans will be made.

The Arkansas Beekeepers' Association was organized May 31 with the following officers: Frank Harsfall, Monticello, president; J. M. Reynolds, Batesville, vice-president; J. E. Clark, Pine Bluff, second vice-president; Miss Sophy Reed, secretary-treasurer, 1601 Battery St., Little Rock. Talks were given by Ray McKnight, Hugh McCain, S. F. Rameson, Prof. W. J. Baerg, J. H. Tull, field agent in marketing; J. G. Ferguson, State Commissioner of Agriculture, and L. W. Boyden of the A. I. Root Co.

The combined meeting of the Philadelphia Beekeepers' Association and the Pennsylvania State Beekeepers' Association was held at the School of Horticulture for Women, near Ambler, June 14. Among the speakers were Charles N. Greene, chief apiary inspector, and professor of Zoology at Harrisburg; Secretary J. E. Rambo of the Philadelphia association, J. L. DuBree, T. L. Wertz, Dr. Shortlidge, and others.

The East Tennessee Beekeepers Association was formed June 26. There were about 200 present, and a number of good addresses given. A representative of the East Ten-

JUST NEWS

Editors

nessee Division Fair was present and authorized an increased appropriation for premiums for beekeepers. The meeting, on the whole, was a splendid success.

G. M. Bentley, the State Entomologist, was chosen president and given power to appoint as his co-workers a vice-president from each of the 24 counties of East Tennessee. Mrs. J. B. Young was selected as secretary and treasurer.

The Eastern Massachusetts Society of Beekeepers held an unusually successful field meet on July 26 at the home of Charles I. C. Mallory, Worcester Boulevard, Boston. The editor attended.

A good crowd was present at the Lenawee County Beekeepers' Association's field meet at the apiary of A. S. Tedman, near Weston, Mich., on July 18. Beekeepers attended from several adjoining counties of Ohio and Michigan.

A field meeting of the New Jersey Beekeepers' Association was held at Fred Mullen's apiary, near New Vernon, on July 19.

The Michigan State Beekeepers' Association held its annual field meet at Boyne City on July 22 and 23. The speakers were B. F. Kindig, C. W. Wing, J. D. Robinson, Ira D. Bartlett, Kenneth Hawkins, and Edwin Ewell.

The Western New York Honey Producers' Association held a field meet at the apiary of Adams and Myers at Ransomville, N. Y., on July 26.

E. R. Root hopes to meet many of his friends at Delphos, O., Aug. 7, at the Ohio State field meet. The roads leading to Delphos are very good, and many will doubtless make the trip by auto.

The Monroe County Beekeepers' Society, New York, will meet at the home apiary of its president, Louis F. Wahl, Scottsville Road, Lincoln Park, N. Y., on Saturday, Aug. 9, at 10 a. m. All are welcome, whether members or not.

The beekeepers of Wayne County, Mich., will have as their guests the Washtenaw and Oakland County Associations at Plymouth on Aug. 22. The editor expects to attend.

The Wisconsin Beekeepers' Association will hold a beekeepers' chautauqua Aug. 25-30 on the old Lake Monona assembly grounds at Madison. Among those who are planning to attend are E. F. Phillips of the Department of Entomology, his assistant, G. S. Demuth, and the editor, E. R. Root.

THERE are some people, and I believe some good ones, who insist that the world is not growing better. During the recent great war they declared wars are going to continue and grow worse and worse until Jesus comes to establish the new heavens and a new earth. A few days ago my youngest daughter, Mrs. Carrie Belle

Boyden, said to me something like this:

"Father, I am like you. I never have the blues. I am always hopeful." Dear friends, was not that a rare compliment, and one that came from very near "home" too? Ever since that time I have been thinking it over and over, and wondering if the dear child *had* got it right. I call her "dear child" even if she is the mother of two bouncing and blooming little girls. Well, Carrie Belle was pretty nearly right, so far as *she* has been acquainted with her father; but before she was born—before the dear Lord lifted me out of the "miry clay"—I *did* have the blues—yes, terrible blues—only such blues as no human being can ever experience, who has *not* been in the clutches of the great adversary of humanity. Let me digress:

The first record we have of murder is where Cain killed his brother Abel; and it begins to crop out thru the scriptures all along thru the history of humanity. Esau declared he was going to kill his brother after his brother had cheated him out of his inheritance—that is, after the good father, Isaac, should be dead and out of the way. We are all very glad, however, that Jacob repented and begged pardon, and the two brothers became friends again some 20 years afterward.

Well, the Bible makes a record of worse murders; and I am afraid that, as the centuries passed, the wars became greater and greater and worse and worse, until the one, *world-wide* war, or almost that, such as we have just witnessed. I am not very well versed in history; but so far as I know this recent war eclipses all of former date. I hope it is true that no other war on record resulted in the death of *seven millions* of

OUR HOMES

A. I. ROOT

Thy kingdom come; thy will be done on earth as it is in heaven.—MATT. 6:10.

Thou shalt not kill.—EXODUS 20:13.

Nation shall not lift up sword against nation, neither shall they learn war any more.—ISAIAH 2:4.

Of the increase of his government and peace there shall be no end, upon the throne of David, and upon his kingdom, to order it, and to establish it with judgment and with justice from henceforth even for ever. The zeal of the Lord of hosts will perform this.—ISAIAH 9:7.

men on one side and about that many on the other. Some of our readers, perhaps, can tell just how many millions were lost all together. Let me now digress again.

When I was old enough to begin to read the papers I learned with much sorrow that not only men and women but boys and girls were bought and sold

here in the United States; and if a young woman happened to be remarkable good-looking, and some vicious man wanted her (no matter for what purpose), if he had the money to "pay the price," she was his to do as he pleased with her, just the same as his horses and cattle were his. While this continued my whole soul rebelled against it; and when some of the good professors of Oberlin College were arrested and put in jail because they assisted runaway slaves in getting to Canada I felt the impulse of war in my own heart—that is, if nothing *but* war would put a stop to it. Well, God sent a good man to stand before Satan's emissaries and declare that no human being should be held in bondage and bought and sold any more. This celebrated "Emancipation Proclamation" resounded thruout the world, and it inaugurated a new era. But it cost the man his life. He died a martyr. I said something of the kind in the prayer meeting some days ago, and asked if there was any spot on the face of the earth just now, where human beings are bought and sold. Nobody seemed to know of any such place; but somebody finally suggested that in the wilds of Africa they have just discovered a small spot where there is something of the kind going on. If true, the march of the missionaries will very soon put an end to it. If there are still unexplored wilds where such heathenism exists, the new method of navigating the air will help us to carry the "glad gospel" into such places.

Well, after *slavery* was put "down and out" a protest was made against the great lotteries—the Louisiana State Lottery, especially, a great institution with the colored people. I do not know who had the

credit of ending that wholesale gambling institution, but I am informed that Uncle Sam did it by closing the mails against it and against all papers that gave it any publicity.

Away back in that time there was a group of fanatics—at least a great part of the world called them fanatics—called “teetotalers”; but these teetotalers were inspired by the Lord Jesus Christ, and for that idea they bled and died to bring about prohibition. The wealthy brewers laughed them to scorn. I have told you all about it again and again; but, may God be praised, I have been permitted to live long enough to see the United States triumph over intemperance just as our nation did over the downfall of American slavery. Some of you may remind me that the fight is *not* quite over. That is true. But it soon will be over; and not only over for the United States but for the whole wide world. The dear Savior, when he taught us how to pray, gave voice to our first text—“Thy kingdom come, thy will be done.” Now, it would be preposterous to think that he asked us to pray for something that would never be granted. *God's kingdom is coming here on earth*, and I believe our good President was exactly right in insisting that if wars are not ended all at once they will very soon be ended, and that no more will bloodshed and murder be necessary to settle differences between nations. Not only are the swords going to be beaten into plowshares, and spears into pruning hooks, but the great institutions for the manufacture of war implements also will be relegated to the junk-heap. These men-of-war that cost millions will be in no way needed. I begin to wonder what we shall do with all the money when peace and prohibition become universal all at once. In the first place, we shall use a lot of it to see that no helpless women or children on the face of the earth die or even *suffer* from starvation.

And there is something else on the way, and coming fast. I do not mean, friends, flying across the ocean and carrying passengers in air-ships; but I mean these little civil wars that are beginning to crop out between capital and labor. Almost while I dictate these words a car strike is being settled in the great city of Cleveland. For something like 24 hours not only the electric railway company but all the police seemed unable to protect the carmen so they might carry people. All sorts of business were at a standstill. Many thousands of dollars were lost by this one day's strike. There was violence, and I think a little blood was shed, but no murder, thank

the Lord. I do not know whether one individual or a company of individuals was instrumental in bringing peace out of the turmoil or mixed-up matters; but it came, and things are going on now quietly as usual.

I think one lesson that comes to the people of that city is that this incident enables them to appreciate facilities for travel as they never did before.

We are having much said now by certain people in regard to the coming of the Lord Jesus Christ. Now, maybe I am not exactly orthodox, especially in the eyes of certain ones, because I insist that Christ Jesus *is* coming in spirit and *has been* coming steadily thruout all these years that I have been permitted to look about and see things in this world of ours. Perhaps even the men engaged in warfare do not see it, but nevertheless it is the real spirit of the lowly Nazarene that is bringing about these great strides that are ultimately to fulfill the promise in the text I have quoted, especially the concluding one—“Nation shall not lift up sword against nation, neither shall they learn war any more.”

My good friends, I have made quite a few predictions during the 60 or 65 years that I have looked over God's creation. One of the first things that impressed me was that bee culture, when it came into its own, was going to place honey side by side with milk, butter, eggs, and cheese, to be sold at every corner grocery and every day in the year. I thought it might take a score of years to bring it about; but it took almost three score. Then when I was delivering my talks on chemistry and electricity around in the schoolhouses I said that, instead of steam, we should soon run our cars by electricity. Of course I was laughed at. I thought it might be three or four years, but it took *forty* or *fifty*. When the Wright brothers first made that wonderful flight and whirled around and came back to the place of starting, I said that the feat would some time be recorded side by side with that of Columbus when he discovered America. That event, too, (flying) might have taken 40 or 50 years to bring it to pass; but this terrible war hurried things up so it has taken only 12 or 15 years from the first to enable us now to get across the great water with a flying machine in the matter of hours instead of days or weeks.

And now with the above introduction let me tell you what I think is going to happen soon; and may the Lord grant that it will not take 30 or 40 years to bring it about. If you will look back you will notice that God has raised up great men like Washington,

Abraham Lincoln, General Grant, and I might mention a score of others, until we come clear up to that great friend of world-wide humanity, Woodrow Wilson. Well, somewhere in this great wide world, if not in America then in some other country, some good, wise and God-fearing man will be found who has remarkable ability to speak peace to the troubled waters during these conflicts between capital and labor, and who will be able to say, as did Jesus to the turbulent waters of Galilee, "Peace, be still." Now do you see what is going to happen? When the cars are stopped, or

when the wheels in some great factory all at once stand still, a wireless S. O. S. message will be sent to this good man, and a flying machine will bring him to the scene of turmoil so speedily that in just a few hours (and maybe, if God permits, in a few minutes) things may start up, the "wheels commence to go round" once more, and everybody will be busy and happy.

Do you not believe it? Let us look again at the last part of my text—"The zeal of the Lord of hosts will perform this."



HIGH-PRESSURE GARDENING

"A LAND FLOWING WITH MILK AND HONEY."

And this, "milk and honey," from one and the same plant.

Our readers, at least many of them, will remember the articles in regard to sunflowers last fall. Well, some kind friend has just sent me the following from the *Jersey Bulletin and Dairy World*:

SUNFLOWERS GOOD SILAGE, MONTANA BUREAUS FIND.

Montana farm bureaus carried on numerous crop demonstrations last year and did notable work with tame sunflowers as a silage crop. Sunflowers under dry-land conditions made an average return of 10.25 tons of silage an acre, and under irrigated conditions 29 tons an acre. These demonstrations showed that sunflowers yield almost three times the tonnage of corn under similar conditions. This kind of feed is particularly adapted to high valleys which do not produce abundant corn. The quality of the sunflower silage has been demonstrated to be good.

Farm bureaus in Montana are the official organization thru which the State experiment station distributes pure and valuable seed which it has developed and increased. These organizations afford a reliable means whereby the experiment station can keep in touch with certain varieties of grain of proved worth. By working thru the bureaus it is possible to secure an equitable distribution over the entire State.

Prof. J. D. McVean, Extension Animal Husbandman of the University of Wyoming, gives some specific directions concerning the growing of sunflowers for silage. The following data are gleaned from his letter:

Yield.—Sunflowers have been grown in Wyoming both on dry land and on irrigated land. The irrigated land produced approximately twice the yield of the dry land, the yield on irrigated land ranging from 18 to 25 tons per acre.

Planting.—Distance between rows on irrigated land, under average conditions, should be 30 inches. Where soil is above average in fertility, 26 inches. Dry land rows should be at least 3 feet apart. Sunflower seed can be drilled with a regular drill, dropping seed every 3 to 6 inches in the row.

Cultivation.—The land should be prepared as for corn and the methods of tillage should be handled the same as for corn.

Seed.—The amount of seed will vary anywhere from 8 to 12 pounds per acre, depending on the width of row and distance between seed in the row. The cost of seed this year is somewhat higher than last year. Seed houses quote 25 cents per pound. The variety grown is the Mammoth Russian, and can be ordered from any reliable seed house.

Professor McVean says that he is firmly convinced that sunflowers are a Godsend to the farmers of the State, whose farms are at an altitude greater than is safe for the production of corn. Crop tests made in different parts of the State show that sunflowers can be planted earlier than corn, will stand more cold, will mature earlier, yield about twice as much per acre, and apparently are as valuable from a feeding standpoint as corn.

I take it from the above that the sunflower will do well on ground that is too poor to grow a good crop of corn; and under such conditions it may give twice the yield for the silo, and also produce a silage that is better for butter and milk than corn. It will stand more frost in cold weather than corn, as I demonstrated to my full satisfaction last fall. It will probably be too late to plant sunflowers when this reaches you, with any hope of growing seed—that is, in most localities; but there will be plenty of time to grow a splendid crop for cow feed, for cows will eat it greedily after they once "acquire the appetite," even if it should not grow more than a foot high. Of course, the part that interests beekeepers most is the honey; and where there are large acreages grown, especially with the view of producing seed, I think it must yield considerable honey. Just now I am testing a sunflower put out by Burbank, which he claims is not only a new creation but a valuable addition to the sunflower family.

In Burbank's catalog for 1919 he makes the following statement:

In 1909 sunflower seed was grown in the United States to the amount of 63,677 bushels. Last season

there was shipped out of one California town, by one buyer, 1,275 tons, for which \$76,000 was paid to the growers. Sunflower seed is used for feed and for oil.

Will some of our California friends please tell us *where* this great sunflower region is? and also tell us, if possible, if there are beekeepers near (and I take it for granted there surely would be); also how about the honey as to quantity, quality, etc.

OUR FLORIDA GARDEN AND SOME GLIMPSES OF OUR FLORIDA HOME.

During the past winter Huber paid us a visit, bringing along a kodak; and as he succeeded in getting some better pictures of things than I may have shown before, maybe you will think there is some repetition.

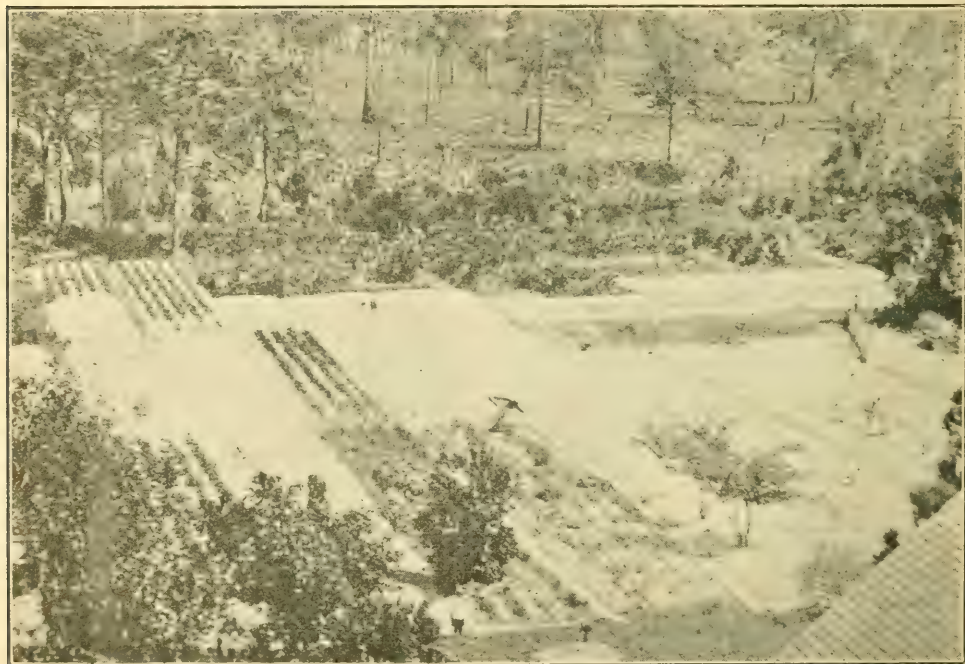
No. 1 shows our garden back of the house after most of the potatoes were dug.

No. 2 is a picture of the same ground about 50 days later, when the potatoes were

peas were mostly gathered we planted Triumph potatoes between the rows of peas. The potatoes matured and were sold, and Cuban flint corn planted in their place; and between the corn we planted velvet beans, see No. 2. The picture was taken May 20th.

The paths between the beds are deep enough so that when we have our great Florida rains, which come occasionally, my potatoes are never drowned out. In that loose soil the water is all out of the way before it can do any harm. After the potatoes are dug they are nicely washed and graded as firsts and seconds.

During the past winter, when I took my first load to the grocer I intended to tell him they ought to bring 50 cents a basket; but he understood that I expected to get 50 cents a basket. As they were very busy I did not wait for my pay for several days, and then was agreeably surprised to find he had sold them for 60 cents per half-peck basket, allowing me the 50 cents I mentioned, or \$4.00 a bushel. But our customers took



No. 1.—A glimpse of our Florida garden where I grew my potatoes in the winter time, at Bradentown, Manatee County, Florida.

dug and corn had taken the place of them. I have given it in order to show you the possibilities in Florida of not only growing two but even three crops on the same ground in one winter.

At the right hand of pictures 1 and 2 you will see a bed that runs clear down to the pine trees close to the drainage canal. Well, when we reached Florida the second week in November I planted garden peas, and we had a very good crop. When the

them off as fast as I could get them uptown, and at \$4.80, or almost \$5.00 a bushel. Perhaps one thing that helped the rapid sale was that I carried them to market in an electric automobile; and this automobile was stored by wind power. Next page is a description of the electric automobile, and also a picture of the windmill with dynamo right under the wheel that turns with the vane to the mill. This dynamo charges the storage batteries that propel the automobile.



No. 2.—A glimpse of our back-yard garden after the potatoes were dug and corn planted in their place.

The little girl in the cut is Huber's daughter, Katharine. She was named after the sister of the Wright brothers who invented the flying machine.

The garage for storing the automobile is seen in the background. Miss Katharyn Root was born shortly after the Wright brothers made their first successful flight and got back to the starting place. An account of this was first written up (and first given to the world) in *Gleanings* in 1905.



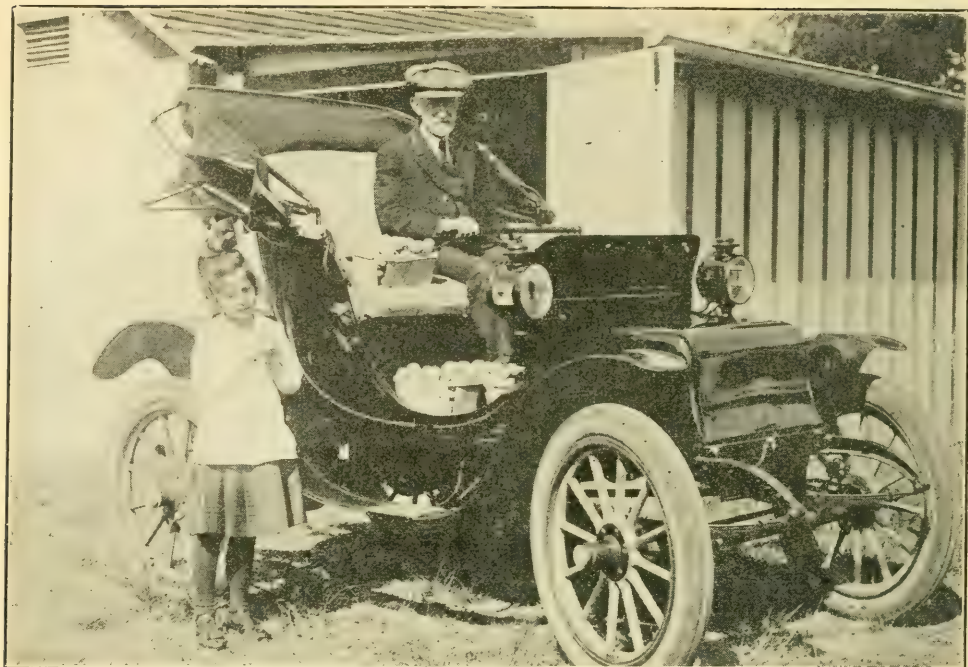
No. 3.—Half a dozen half-peck baskets of the potatoes that sold in Bradentown, Fla., last winter at 60 cents per half-peck basket.

Not far from the electric windmill we have a galvanized mill for pumping water. Huber climbed the tower of this galvanized mill and succeeded in getting a better view of the electric windmill than we have ever shown our readers before, which we give below.

A fair wind for two or three days will charge the electric batteries to their full capacity; and this capacity has run the automobile as far as 62½ miles with the one charge. You will notice by the reading on



No. 4.—The electric windmill that stored the batteries of the electric automobile.



No. 5.—The electric automobile with a load of potatoes ready to take to market.

the vane of the mill that the electric windmill is manufactured by the Wind Electric Corporation, Wyndmere, N. D. This electric outfit is intended for lighting farmhouses and outbuildings. The outfit put up for myself at Bradentown, Fla., is the first one where they have applied their invention to the running of an automobile. I have estimated roughly, that every hour of good wind will give about a mile of travel.



No. 6.—A single hill of dasheens growing just north of one of the poultry-houses.

This hill of dasheens is not yet dug. I feel sure there will be a bushel of tubers if

not more. Since the dasheen is now grown by the acre down in Florida, and shipped north by the carload, I have not given as much attention to it in my garden as when the plant was first introduced.

THE ST. REGIS RASPBERRY NOT SO BAD AFTER ALL.

On page 381 for June, 1918, I suggested that, altho the St. Regis raspberry gave beautiful fruit in only 80 days after putting out the little plants, the berry was so very prolific that it seemed to want the whole garden, and did not seem to bear very much unless considerable work was done to keep it within bounds. I am glad to say, however, that during this present season we had beautiful berries just as strawberries began to disappear; and we have had then on our table now almost daily for three or four weeks, and have greatly enjoyed them and have found them quite wholesome. These berries this year also came from a perfect swamp of bushes. I ran the plow thru the middle of the patch about a year ago and grubbed out the middle of the bed. This, very likely, contributed towards giving us the excellent crop of this year, when they are selling here, at 50c a quart.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Extra quality buckwheat extracted honey in 60-lb. cans.
J. W. Hosie, East Aurora, N. Y.

FOR SALE.—Clover, amber, and buckwheat honey in 60-lb. cans, 2 per case.
H. B. Gable, Romulus, N. Y.

FOR SALE.—Michigan's Best extracted honey in packages to suit; white clover, raspberry, milkweed, buckwheat.
A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE.—Finest Michigan raspberry, basswood, and clover comb and extracted honey. Unexcelled for quality and flavor. Write for prices.
W. A. Latshaw Co., Clarion, Mich.

FOR SALE.—Our new crop of white-clover honey is now ready for market. It is put up in new 60-lb. tin cans, two to the case. The crop is short this season so do not be disappointed by not ordering early. Sample 25c.
D. R. Townsend, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Comb and extracted clover honey.
E. B. Brown, White Plains, N. Y., Box 323.

WANTED.—Comb and extracted honey, also beeswax. Send samples.
C. S. Fryer, 386 Halsey St., Portland, Ore.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED.—Comb and extracted honey, car lots and less. Mail samples, quantity, and price.
W. Morris, Yonkers, N. Y.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations.
M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston.
M. V. Facey, Preston, Minn.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

FOR SALE

HONEY LABELS.—Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. Healy, Mayaguez, Porto Rico.

SEND TODAY for samples of latest honey labels. Liberty Pub. Co., Sta. D, Box 4E, Cleveland, Ohio.

FOR SALE.—Good as new Hatch wax-press, used twice, \$8.00.
H. C. Driver, Mill Hall, Pa.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

FOR SALE.—50 cases second-hand 60-lb. cans, used but once, 40c a case.
J. B. Mason, Mechanic Falls, Me.

FOR SALE.—Pan Handle beekeepers, please note that you can buy Root bee supplies "next door."
Will C. Griffith & Sons, Elm Grove, W. Va.

FOR SALE.—Second-hand honey tins, two per case, 75c per case.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.
R. & E. C. Porter, Lewistown, Ills.

EXTRACTOR FOR SALE.—Novice, Root's, full width two-frame size. Perfect condition. \$15.00 cash, F. O. B.
Harold Shaffer, Hopewell Junction, N. Y.

FOR SALE.—If you wish to know where to save money on bee supplies send for our new price list. It may be worth your trying.
H. S. Doby & Sons, St. Anne, Ills.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE.—45 bound volumes of Gleanings with only 8 numbers missing in the whole lot. These have been the PERSONAL PROPERTY OF DR. C. C. MILLER. All are autographed by him. Some numbers contain his pencilled notes or comments. First check for \$40.00 takes the lot, purchaser paying carriage charges.
The A. I. Root Company, Medina, Ohio.

WANTS AND EXCHANGE

WANTED.—A second-hand four-frame honey-extractor.
H. M. Fox, Foxden, Peekskill, N. Y.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax.
Superior Honey Co., Ogden, Utah.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 38c cash, 40c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival.
The A. I. Root Co., Medina, Ohio.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1919 catalog. We will buy your share of the wax for cash or will work it into foundation for you.
Dadant & Son, Hamilton, Illinois.

REAL ESTATE

FOR SALE.—My home and 17 acres of land, including 250 colonies of Italian bees fully equipped for extracted honey.

P. W. Stahlman, West Berne, N. Y.

FOR SALE.—Young forest of 436 acres, 1½ miles from Slaterville Springs, N. Y., \$3,000. Cash one-third. Remainder on time.

John A. Meier, 104 Garfield Ave., Hamilton, Ohio.

FOR SALE.—Home of the late A. H. Root for 33 years. One of the best bee locations in Central New York for quantity and quality of honey. 24 acres. Write for particulars.

Anna S. Root, Canastota, N. Y.

FOR SALE.—Must sell small ranch, good buildings, plenty of fruit, 250 or more colonies of bees run for comb and extracted, up-to-date fixtures. No better location. Room for 1,000 colonies. Reason for selling, asthma and must change location.

J. G. Puett, Collbran, Colo.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, K. D. No. 3, Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 84 Courtland St., New York.

Hardy Italian queens; one, \$1.00; 10, \$8.00. W. G. Lauver, Middletown, Pa.

FOR SALE.—1919 Golden Italian queens, price list free. Write E. E. Lawrence, Doniphan, Mo.

Golden Italian queens, untested \$1.00 each, six for \$5.00. E. A. Simmons, Greenville, Ala.

FOR SALE.—100 colonies of bees in up-to-date hives. J. N. Tull, Kenton, Tenn.

FOR SALE.—300 colonies Italian bees, cash or trade. Fred Alger, Waukau, Wis.

FOR SALE.—20 colonies of bees and equipment, \$140.00. Wm. Feier, Jr. Mason, R. D. No. 2, Mich.

FOR SALE.—20 colonies of bees. Mostly Italians. A. C. Gould, Weston, R. D. No. 4, W. Va.

PHELPS' GOLDEN QUEENS will please you. Mated, \$2.00. Try one and you will be convinced. C. W. Phelps & Son, Binghamton, N. Y.

THREE-BAND Italians only. Untested queens, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00. H. G. Dunn, The Willows, San Jose, Calif.

"She suits me" Italian queens, \$1.15 each from May 15th to Oct. 15th; 10 or more, \$1.00 each. Allen Latham, Norwichtown, Conn.

FOR SALE.—Indianola Apiary offers Italian bees and queens; tested, \$1.50; untested, \$1.00. J. W. Sherman, Valdosta, Ga.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, \$1.00; mated, \$2.00. C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Golden Italian queens ready April 15; \$1.00 each; \$10.00 per dozen. W. W. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—Three-banded Italian queens, untested only, one, \$1.50; six, \$8.50; dozen, \$16.00. P. C. Chadwick, 725 E. High Ave., Redlands, Calif.

FOR SALE.—Golden Italian queens, untested, \$1.00; 6 for \$5.00. J. F. Michael, Winchester, Ind.

FOR SALE.—Business-first queens. Laying untested queens, \$1.00 each; select untested, \$1.25; tested queens, \$2.00; select tested, \$2.50. Price list for asking. M. F. Perry, Bradentown, Fla.

FOR SALE.—3-band and Golden queens and nucleus. Queens, 1, \$1.50; 6, \$7.50.

Allen R. Simmons, Claverack, N. Y.

Italian queens of "Windmere" for sale. Untested, \$1.00; tested, \$2.00 each.

Prof. W. A. Matheny, Ohio University, Athens, O.

FOR SALE.—Finest three-banded Italian queens, 1 for \$1.25; 6 for \$7.00.

J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

Leather-colored Italian queens, tested, June 1st, \$1.50, untested, \$1.25—\$13.00 a dozen.

A. W. Yates, 15 Chapman St., Hartford, Ct.

FOR SALE.—Three-banded Italian queens, untested, \$1.00; \$10 a dozen. J. A. Jones & Sons, Montgomery, Ala., R. F. D. No. 1, Box 11-A.

FOR SALE.—Bright Italian queens at \$1.00 each, \$10.00 per doz. Ready April 10. Safe arrival guaranteed.

T. J. Talley, R. D. No. 4, Greenville, Ala.

FOR SALE.—Three-band Italian queens. Untested queen, \$1.00; six, \$5.50; twelve, \$10.00. Tested queens, \$2.00 each.

Robert B. Spicer, Wharton, N. J.

FOR SALE.—Italian queens, select, just hatched, 50c; untested, \$1.00. Especially safe introduction plan free. Order in advance.

James McKee, Riverside, Calif.

FOR SALE.—September first 200 colonies of bees, 8-frame hives, full sheets wired foundation, \$6.00 per colony.

L. R. Dockery, Box No. 38, Hagerman, Idaho.

Don't send to me for queens. If you want my stock send to The Penn Co., Penn. Miss. I furnish them, and to no one else, best breeding queens.

C. C. Miller, Marengo, Ills.

FOR SALE.—500 colonies of bees in 8-frame hives, empty hives, extracting combs and other supplies. Price reasonable.

O. D. Bobb, 811 O'Farrell St., Boise, Idaho.

FOR SALE.—Three-band Italian queens ready June 1. Untested, each, \$1.00; 12, \$10.00; 100, \$80.00. Satisfaction and safe arrival guaranteed.

A. E. Crandall & Sons, Berlin, Conn.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$2.00, 6 for \$7.50.

Wm. S. Barnett, Barnetts, Va.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, \$1.00; mated, \$2.00.

C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Extra fine Dr. C. C. Miller queens. Untested \$1.25 each, 6 for \$6.50; 12 for \$12.00; 100 for \$90.00. With 400 to draw from I will be filling orders by return mail. Curd Walker, Queen-breeder, Jellico, R. D. No. 1, box No. 18, Tenn.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May and June, untested, each, \$2.00; six, \$7.50; doz., \$14.00; tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnetts, Va.

Victor's three-banded Italian queens of superior quality. All my queens reared by the best method known, from mothers that produced 240 lbs. of surplus honey last season. \$1.00 each straight, from June 1 to Sept. 1.

Julius Victor, Martinsville, N. Y.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, \$1.25; 12 queens, \$14.00. One pound of bees with queen, postpaid, \$6.00. Safe arrival and satisfaction guaranteed.

M. Bates, Greenville, R. D. No. 4, Ala.

FOR SALE.—Select untested three-banded Italian queens, \$1.50 each; \$15.00 per dozen.

J. F. Garretson, Bound Brook, N. J.

GOLDENS THAT ARE TRUE TO NAME. Un-
tested queens, each, \$1.25; 6, \$6.50; 12, \$11.50;
50, \$40.00; 100, \$75.00.

Garden City Apiaries, San Jose, Calif.

FOR SALE.—25 colonies of bees in nearly new
standard 10-frame hives, and my equipment if you
want it. Come and see them.

D. C. Noble, 365 N. Walnut St., Columbia City, Ind.

WARRANTED QUEENS.—Dr. Miller's strain,
\$1.00 each; \$10.00 per doz. Tested, \$1.50 each;
\$15.00 per doz. Safe arrival and satisfaction guar-
anteed.

Geo. A. Hummer & Sons, Prairie Point, Miss.

FOR SALE.—3-band Italian queens from best
honey-gathering strains obtainable. Untested queens,
\$1.25 each; 6, \$6.50; 12, \$11. Satisfaction guar-
anteed.

W. T. Perdue, Fort Deposit, R. D. No. 1, Ala.

FOR SALE.—Queens of Moore's strain, leather-
colored, three-banded Italians. I am doing my an-
nual requeening and can furnish select tested queens
one and two years old, at \$2.00 each. Also can
furnish untested queens at \$1.50 each; \$8.00 for
6; \$15.00 per dozen. All orders filled promptly.

John Hutchinson, Fife Lake, R. D. No. 2, Mich.

ITALIAN QUEENS.—Northern-bred, three band-
ed, highest grade, select, untested, guaranteed.
Queen and drone mothers are chosen from colonies
noted for honey production, hardiness, prolificness,
gentleness and perfect markings. Price, 1, \$1.00;
12, \$11.00; 50, \$45.00. Send for circular.

J. H. Haughey, Berrien Springs, Mich.

PURE ITALIAN QUEENS. Doolittle and Moore
choice stock, also Golden's that are GOLDEN. Every
queen mated and LAYING before being caged. Se-
lect untested \$1.50 each. Select tested \$2.50. For
large lots write for price. Safe arrival and satisfac-
tion I guarantee.

J. E. Wing, 155 Schiele Ave., San Jose, Calif.

HOLLOPETER'S Italian queens ready in June,
untested, one, \$1.75; six, \$9.00; July, one, \$1.50;
dozen, \$15.00. Quantity price on application. De-
livery after July 10. These prices guarantee you
safe arrival of really high-grade Italian stock, more
efficient service and wings clipped when desired.

J. B. Hollopeter, Rockton, Pa.

NORTH CAROLINA BRED Italian queens of
Dr. C. C. Miller's strain of three-band Italian bees,
gentle and good honey-gatherers. July 1 until Oct.
1, untested, \$1.10 each; \$11.00 per dozen; tested,
\$1.60 each; select tested, \$2.25 each. Safe arrival
and satisfaction guaranteed.

L. Parker, Benson, R. D. No. 2, N. C.

QUEENS, QUEENS. We are now up with or-
ders, are mailing queens day after receipt of rush
orders. No disease. Satisfaction guaranteed. Best
Italian untested queens, 1 for \$1.00, 12 for \$11.50,
50 or more 90c each. See illustrated ad, page 551.
I will care for your interest.

W. D. Achord, Pike Road, Ala.

TESTED ITALIAN QUEENS from the leather-
colored, famous Moore strain. I am now doing my
annual requeening. I will select the best of those
one-year-old queens and offer them for sale at \$2.50
each. A few choice breeding queens for \$5.00 each.
Safe arrival guaranteed.

Elmer Hutchinson, Lake City, Mich.

FOR SALE.—Quirin's hardy northern-bred Ital-
ians will please you. All our yards are wintered
on summer stands; more than 25 years a commer-
cial queen-breeder. Tested and breeding queens
ready almost any time weather permits mailing.
Untested ready about June 1. Orders booked now.
Testimonials and price for asking.

H. G. Quirin, Bellevue, Ohio.

FOR SALE.—Italian queens, golden, and three-
banded, bred from best selected stock. Untested,
each, \$1.00; 6, \$5.00; 12, \$10.00; selected untested,
\$1.50 each. Satisfaction guaranteed.

G. H. Merrill, Liberty, S. C.

BEEES AND HONEY FREE.—100 colonies of
Italian bees, several of the best strains obtainable.
No disease. I hold seven yearly State certificates
showing no disease in the apiaries. I offer these
bees and honey in the hives free to the person that
will give me what the supplies they are in, would
cost at catalog prices. The equipment consists of
the above 100 strong colonies, a small queen-rearing
outfit, a two-frame Root Automatic extractor, 2 wax
extractors, storage tanks, uncapping tank, feeders,
honey cases, extracting combs, etc. Full sheet foun-
dation, comb-honey supers with sections and foun-
dation. Will sell the above in two lots if necessary.
My reason for selling—must move to city to further
the education of my blind boy and girl. The above
must be sold before September.

E. A. Leffingwell, Allen, Mich.

HELP WANTED

WANTED.—One experienced man, and students
as helpers in our large bee business. Good chance
to learn. Modern equipment and outfit, including
auto truck, located near summer resorts. Write,
giving age, height, weight, experience, reference,
and wages wanted.

W. A. Latshaw Co., Clarion, Mich.

SITUATIONS WANTED

Position wanted by experienced apiarist in a
southern apiary, Florida preferred. 25 years' ex-
perience in handling large apiaries. Write
206

Box 278, Alliston, Ont., Can.

MISCELLANEOUS.

FOR SALE.—Milch goats and kids, prices reason-
able.

F. F. Huebner, Monroe, N. Y.

FOR SALE.—Silver Spangled Hamburg eggs,
and fine rare old Paganini violin.

Elias Fox, Union Center, Wis.

PRINTING SPECIAL.—100 letterheads, 100
billheads, 100 cards, 100 envelopes, \$1.90. Send for
samples.

Hawthorne Press, Yonkers, N. Y.

Guinea Pigs. Young Stock for sale, females,
\$1.50; males, \$1.00. Pleasant Hill Caviery, 1629
E. Florida St., Springfield, Mo.

E. D. Townsend, the present owner of the *Domestic Beekeeper* bought beekeepers' supplies for the National Beekeepers' Association for several years. He is now buying for the subscribers of the *Domestic Beekeeper* at the same low manufacturers' price. Listen now what he has got up his sleeve: Any GLEANINGS' subscriber buying five dollars' worth of supplies thru the *Domestic Beekeeper* at catalog price, and sending along an extra dollar to pay for a year's subscription to the *Domestic Beekeeper* will get in return a rebate check for a dollar, leaving the year's subscription to the *Domestic Beekeeper* absolutely free to you. Of course, if your order for supplies is larger than five dollars, you will get a correspondingly larger rebate check on your order. One of our subscribers got a rebate check of \$40.00 on his order of supplies last month, March. It was just like getting money from home to him, as he sent us the same money he would have had to pay if he had bought thru the regular dealer in beekeepers' supplies. More and more, close buyers of beekeepers' supplies are investigating the buying facilities of the *Domestic Beekeeper*. A word to the wise should be sufficient to cause you to send your next order for beekeepers' supplies to the Domestic Beekeeper, Northstar, Michigan.

I. F. Miller's Strain Italian Queen

BEES FOR SALE. Northern bred, for business, from my best *Superior Breeders*; gentle, roll honey in, hardy, winter well, not inclined to swarm, leather-colored or three-banded. Queens a specialty; twenty-five years' breeding experience. Safe arrival and satisfaction guaranteed. Untested, \$1.00; 6, \$5.50; 12, \$10.00. Select untested, \$1.25; 6, \$6.75; 12, \$12.00.

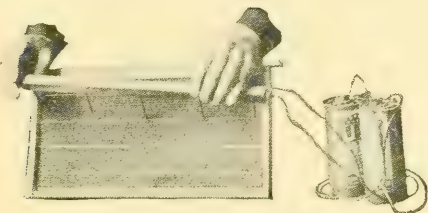
I. F. MILLER, Rt. 2, Brookville, Pennsylvania

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1919 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

Electric Imbedder



Price without Batteries, \$1.25

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market. For sale by all bee-supply dealers.

Dadant & Sons Manufacturers Hamilton, Ills.

Don't Lose Any More Wax

Beekeepers: Let us print you some cloth or manilla tags to go on your shipments of wax with your name and address. That is the only safe way to be sure your wax isn't lost in transit.

Prices on Application.

The A. I. Root Co., Medina, Ohio

Advertisements Received too Late to Classify

I want to contract with a few men for bees for next season. Don't care to sell less than a hundred packages to the man. No diseases. Willing to send samples at reduced price now.

F. M. Morgan, Hamburg, La.

FOR SALE.—New crop clover extracted honey, two 60-lb. cans to case, 25c per lb.

H. G. Quirin, Belluevue, Ohio.

FOR SALE.—One Cowan extractor, used but little, No. 15, price \$15.00. One Dadant uncapping can, good as new, \$7.00.

J. Mason, Mechanic Falls, Me.

FOR SALE.—Whole or part, apiary of 75 colonies with complete equipment for operating about 125 colonies. Some comb equipment but mostly extracted. **C. F. Genthner, Kingston, N. Y.**

Position wanted as working partner, or manager of modern apiary, or poultry business on per cent basis, by an experienced man.

J. W. Bush, Crystal Bay, Minn.

Special Notices by A. I. Root

THE NEW ANNUAL WHITE SWEET CLOVER; ITS RAPID GROWTH.

I planted the clover seed which you so kindly sent me. I made two plantings of it, so as to make sure. The early planting produced two plants; the later planting twelve plants, which are now 23 inches high. The old variety planted at the same time are about 13 inches high, altho I think they have the better situation. I will give them a fair chance and will report the final outcome later on. Yours sincerely,

M. Y. CALCUTT,

8126 47th Ave., S., Seattle, Wash., July 11, 1919.

P. S.—The clover I said was 23 inches high (that was yesterday's measurements) today I find to be 24½.

The above is further proof of the fact that this new sweet clover makes as big a growth in one year as the old does in two seasons, and perhaps more than that; but I am sorry to tell you that our supply of seed is now exhausted, so that we cannot send even a little pinch, and there will be no more until, say, October. The plants we have in the garden are making a tremendous growth, like those mentioned in the letter. We will hold the addressed envelopes that may come until the new seed will germinate.

SHIPPING CASES FOR COMB HONEY

It is an acknowledged fact that comb honey put up in Attractive Shipping Cases will bring a better price than the same honey put up in an inferior case. Our Shipping Cases are made of a good, clear grade of basswood lumber and will be a credit to any crop of honey.

Tin Containers for Extracted Honey

We have a good stock of 60-lb. Square Cans, 12-lb. Square Cans, 5- and 10-lb. Round Friction Top Pails. We also carry in stock a complete line of all other Beekeepers' Supplies.

The Lotz 1-piece Section

The kind that does not break in folding is manufactured by us. Our 1919 catalog and price list mailed to you free upon request.

AUGUST LOTZ COMPANY --:-- BOYD, WISCONSIN

WANTED—TO PURCHASE COLORADO
Section and Bulk Comb Honey
 direct from producers in car lots and less than car lots.
 Please let us know what you have and submit sample,
 full description as to weight, and your lowest price to
J. E. HARRIS, MORRISTOWN, TENN.
 or our western representative, **Mr. R. B. McGuffin,**
 1165 Emerson St., Denver, Colo.

Distributors Root's Goods
FOR PENNSYLVANIA
 Send for new special catalog featuring the "Simplex"
 Super, and giving instructions to beginners
Prothero, Bailey & Goodwin DUBOIS PA.

Leininger's Strain of Italians

have stood the test for 35 years. We will offer queens for
 sale from this famous strain, beginning June, as follows:
 One untested queen, \$1.50; 6, \$8.00. One tested queen,
 \$2.00; 6, \$11.00. Select breeders, \$15.00 each.

Fred Leininger & Son, Delphos, O.



The "BEST" LIGHT

Positively the cheapest and strongest light on earth.
 Used in every country on the globe. Makes
 and burns its own gas. Casts no shadows. Clean and
 odorless. Absolutely safe. Over 200 styles. 100 to
 2000 Candle Power. Fully Guaranteed. Write for
 catalog. AGENTS WANTED EVERYWHERE.
THE BEST LIGHT CO.
 306 E. 5th St., Canton, O.

FLOUR IS HIGH

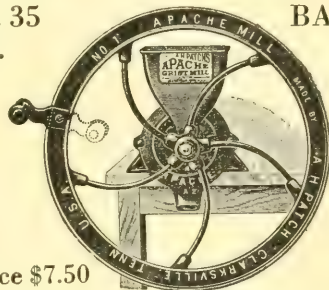
Why not live better and save money, too?
 Grind your wheat into Best Whole Wheat or Graham
 Flour. Your doctor knows how healthy these are.
 Make the **BEST Corn Meal**, the old-fashioned sort you
 can't buy at any price nowadays.
 Do all sorts of fine and coarse grinding with an

APACHE MILL

Wt. 35
lbs.

BALL

**B
E
A
R
I
N
G**



Price \$7.50

This Mill Makes Best Corn Meal, Graham
 Flour, Rye Flour, Chops, Hom-
 iny, Cracks Peas, Grinds Coffee,
 Spices, etc. Perfect adjustment for coarse or
 fine work. Will send Mill prepaid by Express **\$7.50**
APACHE GRIST MILL—Largest capacity, fastest grind-
 ing, easiest turning handmill. Does more, lasts longer.

A. H. Patch, Inc., Clarksville, Tenn.
 The Blackhawk Corn Sheller Inventor
 Invented 1885

"Special Crops" A high-class il-
 lustrated month-
 ly journal devo-
 ted to the Growing and Marketing of Ginseng,
 Golden Seal, Senega Root, Belladonna, and other unusual crops.
 \$1.00 per year. Sample copy 10c. Address
Special Crops, Box G, Skaneateles, New York

LOCKHART'S SILVER - GRAY CARNIOLANS

"LINE BRED" for the past 33 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE
 combs, and use mostly wax in place of propolis. Prices of queens for 1919: Untested queen, \$1.25, six \$6.00, dozen \$11.00. Select
 untested queen \$1.50, six \$8.00, dozen \$15.00. Tested \$2.00. Breeders \$3.00, \$5.00, \$10.00. Safe arrival guaranteed in United
 States and Canada. No foul brood here.

F. A. LOCKHART & COMPANY . . . LAKE GEORGE, NEW YORK

BANKING
BY MAIL
AT 4%

EFFICIENT service, unquestioned safety, and
 4 per cent compound interest have brought
 to this bank hundreds of depositors residing in
 all parts of this country.

Without any obligation on your part, we will
 be glad to send you full information.

THE SAVINGS DEPOSIT BANK CO.
A.T. SPITZER, Pres.
E.R. ROOT, Vice Pres. E.B. SPITZER, Cash.
MEDINA, OHIO

MOORE'S STRAIN OF ITALIANS

Noted for Honey Gathering,
Hardiness, and Gentleness

Untested queens - - - \$1.50; 6, \$8.00; 12, \$15.00
Select Untested - - - 2.00; 6, 10.00; 12, 19.00
Safe arrival and satisfaction guaranteed.

I intended to run my apiaries for honey this year; but so many of my customers say that they must have "Moore" queens, I am devoting part of my home apiary to queen-rearing.

J. P. MOORE, MORGAN, KY.

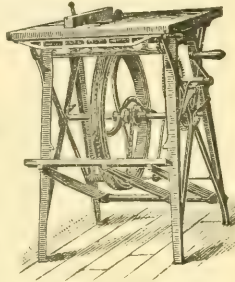
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
645 Ruby St
ROCKFORD, ILLINOIS



BEE - SUPPLIES

FALCON LINE

We carry the largest supply
in our section. Send us
your inquiries.

Lowest Prices, Quality Considered

C. C. Clemons Bee Supply Co.
128 Grand Ave. KANSAS CITY, MO.

MASON BEE SUPPLY COMPANY

MECHANIC FALLS, MAINE

From 1897 to 1919 the Northeastern
Branch of The A. I. Root Company

Prompt and
Efficient
Service

BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway.

If you have not received 1919 catalog, send name at once.

Established 1885



It will pay you to get our catalog and order early.

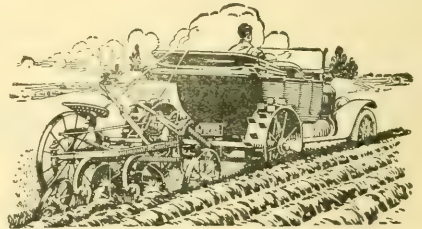
Beekeepers' Supplies

The Kind You Want and The Kind
That Bees Need.

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.

High Hill, Montgomery Co., Mo.



Make a Tractor of Your Car

Use it for farm work. Pullford catalog shows how to make a practical tractor out of Ford and other cars.

Write for Catalog

Pullford Co., Box 23 C Quincy, Ill.

QUEENS

MR. BEEKEEPER

QUEENS

the Season for Requeening is Now Here

We are now in a position to give your orders prompt attention. Our queens are bred from the very best imported stock that can be had. They are hardy, gentle, disease-resisting, and not given to swarming. You take no risk in buying our queens, for we guarantee every queen to reach you in first-class condition, and to give perfect satisfaction in the U. S. and Canada.

Price List for 1919.

	One	Six	Twelve
Untested	\$1.25	\$ 6.50	\$11.50
Selected Untested	1.50	7.50	13.25
Tested	2.50	13.00	24.50
Selected Tested	4.00	22.00	41.50

Untested, \$90 per hundred. Selected untested, \$115 per hundred.

L. L. FOREHAND

-- -- --

FT. DEPOSIT, ALABAMA

Beeswax Wanted

In big and small shipments to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1918. We are paying higher prices than ever for wax. - We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

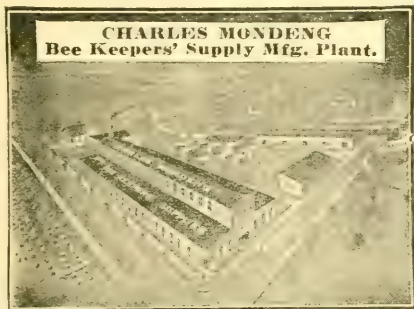
Carl F. Buck

The Comb-foundation Specialist

Augusta, Kansas

Established 1899

\$30,000 WORTH OF Bee Supplies



CHARLES MONDENG
Bee Keepers' Supply Mfg. Plant.

All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

*Will Take Beeswax in Trade at
Highest Market Price.*

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

Queens--Rhode Island--Queens

Italian Northern-bred queens. Very gentle and hardy. Great workers. Un-
tested, \$1. 6 for \$5. Circular on applica-
tion. Queens delivered after June 1.

O. E. Tulip, Arlington, Rhode Island
56 Lawrence Street

"Best" Hand Lantern

A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

Complete Line of

Beekeepers' Supplies

Catalog on Request

F. Coombs & Sons, Brattleboro, Vt.

Mott's Northern-bred Italian Queens

are hardy, prolific, gentle, and hustlers, therefore resist well disease.

Untested, \$1.00 each; \$10.00 for 12.

Select Tested, \$2.00 each.

Virgins, 50c each.

Plans "How to Introduce Queens," and "Increase," 25c.

E. E. Mott, Glenwood, Mich.

GOLDEN QUEENS.....

After April 1: Untested, \$1.25 each, 6 for \$7.00, or \$13.00 per dozen, or 50 for \$48; also 3-band untested at same price; tested, \$3.00 each, and my very best at \$5.00 each. Satisfaction.

R. O. Cox, Rt. 4, Greenville, Alabama

BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives, and shipping boxes; 3-frame nucleus colonies, and bees by the pound. Tested Italian queen, \$2.00; untested, \$1.50.

I. J. STRINGHAM, GLEN COVE, N. Y.

It Will Be Safe and Sure

BEEKEEPERS: Some of you older ones will recall that it was in 1869, 50 years ago, that A. I. Root began, in a small way, to make beehives and beekeepers' supplies. In his great enthusiasm for bees and beekeeping, he saw the value and possibilities in supplying beekeepers with standard goods well made. He first used a foot-power saw; then a windmill; then a small steam engine. He began his manufacturing in a single small room—and from the first never lost sight of honest dealing and honest goods. After 50 years he is still at the head of this business—the greatest of its kind in the world, now become The A. I. Root Co., and doing business on every continent of the Earth.



A. I. ROOT

There has not been a year of these 50 years that has not been a prosperous, larger-growing year for the A. I. Root business. Its earnings have constantly increased and its ability to pay dividends has grown accordingly. It is more prosperous today than ever, and its field is larger. But with the enlarging of this field, due especially to the ever increasing demand on the part of public for Airline Honey, has come the need of larger capital. It is to provide capitalization for purchasing honey and manufacturing stock in larger amounts that The A. I. Root Co. is now offering a limited amount of

7 Per Cent Preferred Stock

Cumulative and preferred both as to dividends and assets. It will be sold at its par value of \$100 per share. We can say to our beekeeping friends that we do not believe there is any better or safer investment than this stock anywhere or in anything, and we would prefer to have beekeepers own it, for then they become partners with us and our interests become theirs. Indeed, we wish every dollar of this stock were to be owned by beekeepers and beekeepers only.

We shall be glad to give fullest information about this stock and our financial standing in every way to any interested friends. What we know about our own company, our friends who may contemplate purchasing any of this stock are very welcome to know.

The A. I. Root Co.

J. T. CALVERT, Treasurer

Medina - - - - - Ohio

IN MAKING UP RUSH ORDERS REMEMBER WE ARE ABLE TO MAKE

IMMEDIATE DELIVERIES

BY PARCEL POST AND EXPRESS

of the following: Glass Honey Containers.
Friction Top Pails, 3-, 5-, and 10-lb. sizes.
5-gallon Cans.

All sizes and weights of Dadant's Foundation.
Comb- and Extracted-honey Supers, with and without inside fixtures.

One- and two-story Lewis Beehives, in flat; nailed and painted.

Most sizes of Root's Extractors.

Bingham Smokers and Honey Knives (including steam heated).

Lewis Sections, all Standard sizes.

Wire, Nails, Staples, etc.

Queen Excluders, all styles.

All lines of Supplies you are likely to need in a hurry.

Need any shipping cases? We have lots of them. Thank you. Now may we serve you!

THE DEROY TAYLOR CO. - Wayne Co. - NEWARK, N. Y.

If you read this before the First of August *Remember* the State Field Meeting and be with us.

Ontario Bred Italian Queens

NOW IS THE TIME

TO REPLACE THOSE OLD BLACK QUEENS

with young ones of a gentle strain. Great honey gatherers and resistant to European Foul Brood.

Select Untested - \$1.25 each; \$13.00 dozen

Untested - - - \$1.00 each; \$10.00 dozen

RUMFORD & FRETZ -:- -:- FOREST, ONTARIO

"falcon"

Your Duty—*Do You Know It?*

It is to get ready for the coming season and be ready for the first honey flow. This will net you profits. Prepare your bees for a big year and take no chances. Get the best to do with and have the best results.

Our Duty—*Do We Know It?*

We get the beekeepers ready for the big season. Supply them with the best of everything with which to work and get the best results. Send us a list of your requirements for quotation. **TO DELAY MEANS LOSS TO YOU.** **"Falcon"** service cannot be beat. Catalog and Simplified Beekeeping on request.

W. T. Falconer Manufacturing Company

Falconer, New York

"where the best bee hives come from."

"falcon"

SEASONABLE SUGGESTIONS

Friction-top Pails

5- and 10-pound sizes

Five-gallon Cans

Of extra - heavy tin
plate and 3-inch screw
cap. Recommended
by State Apiarist B. F.
Kindig to Beekeep-
ers' Association

Shipping Cases

The Root Quality
kind for comb honey

Sections & Comb Foundation

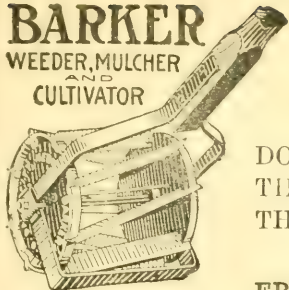
to finish the season

M. H. Hunt & Son

510 North Cedar St.
Lansing, Mich.

BARKER

WEEDER, MULCHER
AND
CULTIVATOR



Weeds and Mulches

In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

BARKER
MFG. CO.
Dept. 10

DAVID CITY, NEB.

Gentlemen.—Send me postpaid your free book and Factory-to-User Offer.

BARKER MANUFACTURING CO.

Dept. 10

David City, Nebraska

Name _____

State _____

Town _____

R. R. No. _____ Box _____

**Southern
Head-
quarters
for
Italian
Queens**



We have increased our queen yard 25 per cent to supply increasing demands for our Italian queens.

	Before June 15			After June 15		
	1	12	50 or more	1	12	50 or more
Untested Italian queens.....	\$1.25	\$13.25	\$1.00 each	\$1.00	\$11.50	\$0.90 each
Tested Italian queens.....	2.00	23.00		1.50	15.00	
Breeders, Italian queens.....	5.00		each, any time.			

We are willing to replace any untested queen which might prove to be mismated. We guarantee safe arrival on all queens we send out. We have never had any foul brood in or near any of our yards. Because we spare neither labor nor expense to produce the best queens for you is why we can not sell cheaper. Let us supply your needs.

W. D. ACHORD, Pike Road, Alabama.

QUEENS

We guarantee safety from all foul brood disease, because there is not now and never has been any foul brood in our part of the country. Our bees and queens are absolutely free from it. Remember that

LAST YEAR WE REARED 12,348 QUEENS

which we believe to be the world's record among queen-breeders. We could do this only because of the reputation for quality and service that we have established among beekeepers far and wide.

PRICE OF QUEENS.

After June 15th	1	12	50 or more
Untested	\$1.00	\$11.00	\$.90
Select Untested	1.50	15.00	1.30
Tested	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

Prices of Dr. Miller's Queens

After June 15th	1	12	50 or more
Untested	\$1.25	\$13.25	\$1.10
Tested	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

We have a full line of Root's goods and guarantee to fill all orders within three days after receipt and all mail orders the same day received. Try us on sections, foundation, smokers and all small orders by mail. A full line manufactured from Cypress, the Wood Eternal, which we guarantee to please you. Solid one-piece covers made from the best wood in the world, without crack or crevice, at the price of other wood covers. Beeswax wanted.

SEND FOR CATALOG

The PENN COMPANY

PENN, MISSISSIPPI

IT'S OUT

THE NEW 1919 EDITION of THE

ABC & XYZ of BEE CULTURE

This standard work has again been thoroly revised and brought down to date, and considerable new material has been added. If you are a beginner or an expert in bee-keeping you want this last word on the subject.

More than one-fourth of the new edition is already sold. You had better order today.

The A. I. ROOT Co.
MEDINA. OHIO

DADANT SPECIALTIES

DADANT'S FOUNDATION

World renowned for its excellence. Put to actual tests in our own apiaries of several hundred colonies. Every inch equal to sample in every respect. Acknowledged by hundreds of users to be the most readily drawn out by the bees, and therefore a saving to use under any circumstances.

ELECTRIC IMBEDDER

Melts the wires into the Foundations as if they had grown there. Requires only two dry cells to operate, or can be used on city current by use of a transformer which we furnish or which can be made at home. Full directions with each machine.

BEE BOOKS

First Lessons in Beekeeping, by C. P. Dadant, is a thorough book for the beginner, while **The Honeybee**, by Langstroth and Dadant, is considered the classic in Bee Culture. **A Thousand Answers to Bee Keeping Questions**, by Dr. C. C. Miller, is a compilation of over 1,000 questions answered by Doctor Miller in his 60 years of beekeeping; for veteran and amateur alike. **Practical Queen Rearing**, by Frank C. Pellett, gives the improved methods of rearing queens, with variations suitable for the home yard.

AMERICAN BEE JOURNAL

A monthly publication of 36 pages, foremost in its field for the advancement of beekeeping. Contributors from all sections and countries. The result of painstaking efforts and long experience of its editors, C. P. Dadant and Frank C. Pellett.

HONEY LABELS

Distinctive designs, up-to-the-minute. We have just issued a label catalog with samples of stationery designed especially for the beekeeper. Write for your copy. All kinds of labels to fit all styles of packages. Attractive honey sellers.

*Read Our Catalog for Further
Particulars.*

Dadant & Sons, Hamilton, Ills.

Gleanings in Bee Culture

Vol. XLVII

SEPTEMBER 1919

No. 9



AN AUSTRALIAN BEE-TREE.

We are always in the market for HONEY and BEESWAX.
Do not sell until you have seen us.
We will pay you spot cash for any thing you sell us.
Get our prices on cans and cases.

Los Angeles Honey Co.

633 Central Bldg., Sixth and Main Sts.

Los Angeles, California

Telephones: Home 10419, Main 5606

SHIPPING CASES FOR COMB HONEY

It is an acknowledged fact that comb honey put up in Attractive Shipping Cases will bring a better price than the same honey put up in an inferior case. Our Shipping Cases are made of a good, clear grade of basswood lumber and will be a credit to any crop of honey.

Tin Containers for Extracted Honey

We have a good stock of 60-lb. Square Cans, 12-lb. Square Cans, 5- and 10-lb. Round Friction Top Pails. We also carry in stock a complete line of all other Beekeepers' Supplies.

The Lotz 1-piece Section

The kind that does not break in felling is manufactured by us. Our 1919 catalog and price list mailed to you free upon request.

AUGUST LOTZ COMPANY :- BOYD, WISCONSIN

Root Service

WE ARE CLOSING THE FIRST SEASON IN

Our New Factory.

BECAUSE OF A LATE START IN
GETTING MACHINERY SET FOR
OPERATION OUR SERVICE EAR-
LY THIS YEAR WAS NOT UP TO
NORMAL.

We are taking advantage of the slack season to make up a surplus stock of standard goods and will be in a position to give prompt service in the future from both offices.

We believe our factory is filling a need for a higher standard of quality in hives, frames, and other beekeepers' supplies in Pacific Coast territory and merits your support.

Our company was incorporated as a California corporation last November, and there are still some shares available for investment.

Let us hear from you whether you are interested in selling honey or beeswax, or in buying supplies, or in making a safe investment.

The A. I. Root Co.
of California

1824 E. 15th St.
LOS ANGELES

52-54 Main St.
SAN FRANCISCO

"Griggs Saves You Freight"

TOLEDO

August is here--the White Clover Honey flow about over. . . Don't get short of sections and foundation--season promises to be good.

Honey Cans and Cases

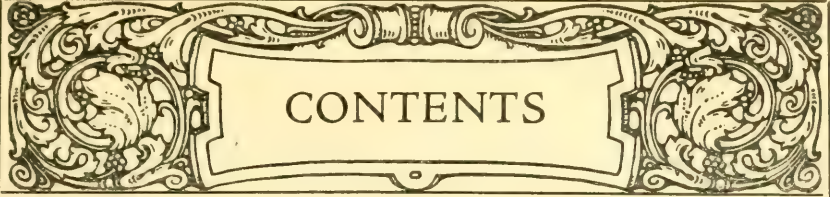
Order these early--a limited number of 2d-hand cans on hand at 75c per case.

Honey--Honey--Honey

We shall be in the market for any quantity, both comb and extracted. . . Mail sample of extracted and state price asked in first letter.

BEESWAX always in demand
--Cash or in trade.

GRIGGS BROTHERS CO.
Dept. No. 25 Toledo, Ohio



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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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Managing Editor

HERE IS A REPRODUCTION OF Muth's New Home in Cincinnati



Anticipating the wants of the trade and to meet the demands of our customers, we are now located at Pearl and Walnut Streets, carrying tremendous stocks—making this the largest Honey House in the country.

WHY YOU SHOULD BUY NOW! We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointment if you send your order for bee supplies to MUTH NOW.

MUTH'S ADVANTAGES! We sell at factory prices, save you freight and give you the finest bee supplies manufactured.

**LEWIS BEEWARE DADANT'S FOUNDATION
ROOT'S SMOKERS, EXTRACTORS, ETC.**

Our new 1919 catalog sent for the mere asking. Drop us a card now! **OLD COMBS AND CAPPINGS.** Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send us your old combs and cappings.

WANTED, COMB HONEY. Comb and Extracted Honey find ready sales here. Tell us what you have. We buy beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city come and see us.

THE FRED W. MUTH COMPANY

Pearl and Walnut Sts.

"The Busy Beemen"

Cincinnati, Ohio

Do the Bees "Take to Theirs First"?

READ THE FOLLOWING:

Montalba, Texas, June 11, 1919.

Superior Honey Co.,
Ogden, Utah.

Dear Sirs: I received your SUPERIOR FOUNDATION all O. K. and tried it in the brood-chamber and supers, side by side with that of others who claim that the bees would take to theirs first, but they did not.

I never had tried your foundation until this time, but the bees draw it out nice and even. Some makes that I have tried they gnaw out, so I count yours the best that I have ever tried, and will try to get it every time. Please send me your price list.

Yours truly,
Leo Wardel.

When ordering for next season write us for special prices on our SUPERIOR FOUNDATION.

Superior Honey Company -:- Ogden, Utah
(MANUFACTURERS OF WEED PROCESS FOUNDATION)

HONEY WANTED HONEY

Write us what you have to offer in extracted or comb. If comb, state how packed, graded, and quantity. If extracted, state how put up, mail sample, and quote your lowest price. We will buy unlimited quantities if price and quality are right.

C. H. W. WEBER & COMPANY
2146 CENTRAL AVENUE CINCINNATI, OHIO

HONEY MARKETS

In Canada and parts of the United States where unusually high prices are asked, the demand and movement are slow; but, in general, the honey market is firm and prices are slightly advancing.

U. S. Government Market Reports.

HONEY ARRIVALS, AUG. 1-14.

Medina, O.—54,940 pounds New York, 49,760 pounds California.

Keokuk, Iowa, and Hamilton, Ill.—No arrivals.

SHIPPING POINT INFORMATION.

San Francisco, Calif.—Offerings light; demand moderate, improving; market firm. Price to producers: extracted, per pound, light amber alfalfa 14-16c, white 16-18c, light amber sage 15-17c, white sage 18-20c, white orange 18-20c.

Los Angeles, Calif.—Supplies very light, estimated season half over. Demand and movement good, market firm, little change in prices. Carloads f. o. b., usual terms: Californias, white orange blossom mostly 20c per lb., white sage 20c, extra light amber sage 18½-19c, light amber sage 17½c, light amber alfalfa 15-16c. Beeswax: l. c. l. sales mostly 40c per lb.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the prices at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding two weeks. Prices represent current quotations.)

Chicago.—No carlot arrivals, demand and movement slightly improving, market steady. Sales to jobbers: various sections, extracted, white 19-20c, light amber 17-19c per lb. Beeswax: demand and movement good, market steady; refined 50c, unrefined 45-46c per lb.

Cincinnati.—1 Calif. arrived, express receipts light, fair inquiry. Extracted and comb: no sales reported. Beeswax: supplies moderate, demand and movement good, market firm. Sales to jobbers, average yellow 40-42c per lb.

Cleveland.—Supplies light, demand and movement slow, market dull, no change in prices. Sales to jobbers: extracted, Western 60-lb. tins, white clover 21-23c per lb., Ohio, white clover 22-26c. Comb: Ohio mostly \$4.00-4.50, few \$4.75 per dozen combs. Beeswax: Too few sales to establish market.

Denver.—Approximately 700 cases comb and 10,000 pounds extracted arrived. Supplies moderate, demand and movement moderate, market steady. Sales to jobbers: Colorado, comb; white, 24-section cases, No. 1, \$6.75. Extracted: white 18-20c per lb., light amber 16-18c. Beeswax: cash to producer on farm, 38c per lb.

Kansas City.—Approximately 110 cases arrived, demand and movement good, market steady, little change in prices. Missouri, comb; No. 1 light, 24-section flat case \$7.50. Extracted: No. 1 light 20c per lb.

Minneapolis.—Supplies very light, practically no demand, market weak, too few sales to establish market.

New York.—Arrived: 1 car from Penn. and 1 car from Colo. Imported: 180 barrels and 15 tierces from Porto Rico, 86 barrels and 25 cases from Mexico, 39 barrels from West Indies. Exported: 551 cases to Italy, 42 cases to France, 247 barrels to Belgium, 366 cases and 751 barrels to Holland, 41 cases to Norway, 25 barrels to Sweden. Demand and movement moderate, market unsettled. Sales to jobbers: extracted; Porto Rican and Cuban, \$1.35-1.60, mostly \$1.40-1.50 per gallon. California, light amber alfalfa, 16-16½c per lb. Beeswax: imported; 369 bags and 42 boxes from South Pacific ports, 50 bags from Mexico, and 51 bags from Cuba. Demand and movement good, market steady. Sales to jobbers: light 44-45c, dark 42-44c per lb.

Philadelphia.—Approximately 8,200 pounds from Calif., 10,100 pounds from New York, 4,100 pounds from Florida, and 26,100 pounds from West Indies arrived. Demand and movement improving, market stronger, prices higher. Sales to jobbers: extracted; West Indies, amber \$1.55-1.60 per gallon. Purchases by local wholesalers f. o. b. Philadelphia, white orange 22c per lb.; Floridas, amber 17c.

St. Paul.—Supplies very light, practically no demand, market weak, too few sales to establish market.

St. Louis.—Supplies very light, practically no demand or movement, market dull. Sales to jobbers: extracted; Southern amber, per pound, in barrels 11-12c, in cans 13-16c. Comb: practically no supplies on market. No sales reported. Beeswax: prime, 40c per lb.

George Livingston,
Acting Chief of Bureau.

From the market bulletin of the Montana State Beekeepers' Association under date of August 15, we take the following:

From data received from the members of the association the secretary has compiled the following lineup of quotations:

Comb honey, retail sales: average price for No. 1, \$6.09; for No. 2, \$6.58½ per case. High price for No. 1, \$7.20; for No. 2, \$7.00; low price for No. 1, \$6.00; for No. 2, \$6.00.

Comb honey, wholesale: average price for No. 1, \$6.58; for No. 2, \$5.83½; high price for No. 1, \$7.20; for No. 2, 6.50; low price for No. 1, \$6.00; for No. 2, \$5.00.

Extracted honey, retail sales: average price, 60-lb. tins, 23½c; 10-lb., 26¾; 5-lb., 27c. High price, 60-lb. tins, 23c; 10-lb., 27½c; 5-lb., 30c. Low price, 60-lb. tins, 20c; 10-lb., 24c; 5-lb., 25c.

Extracted honey, wholesale: average price, 60-lb. tins, 22½c; 10-lb., 24½c; 5-lb., 26c. High price, 60-lb. tins, 23c; 10-lb., 27½c; 5-lb., 30c. Low price, 60-lb. tins, 20c; 10-lb., 20c; 5-lb., 20c. Buyers offer, 60-lb. tins, 23c; 10-lb., 25c.

"The buyers' offer" on extracted honey exceeds slightly the average of prices listed by the producers and indicates a willingness to pay a good price for extracted honey. The market is in a peculiar condition as regards sales to wholesalers at this time; the local wholesalers are generally carrying over a considerable portion of their 1918 crop, which they will move before buying much of the 1919 crop. This will make the market somewhat low, but since they paid in many cases as much as 25c in 60-lb. cans for the 1918 stock, prices will remain firm. As soon as the old stock gets low they will be in the market for the 1919 crop and, as the shortage of canned fruits and other sweets will be making itself felt by that time, the demand for honey will be heavy."

General Quotations to Wholesalers.

[These firms are asked to quote the wholesale price they make to retailers. Accordingly their prices must be figured at least one profit higher than the price paid the producer. The large dealers do not quote prices in print that they will pay futuurely to producers.]

NEW YORK.—We quote from several of the leading honey dealers in New York City, under date of Aug. 16:

"The honey market is quiet but steady. Stocks are plentiful, but the demand is backward. There is a good demand for yellow beeswax, also darker grades, and the market is firm. Extracted honey, light amber in barrels \$1.50; amber \$1.40. Clean average yellow beeswax, per lb. 43c."

"Market strong and advancing. Extracted honey, light amber, in cans, 21-25c."

"Altho the demand is not very heavy, there is a firmer feeling in the market, and prices are a little higher. Plenty of stock on hand to take care of immediate business, especially darker grades in barrels. Extracted honey: white, per lb., 18-20c; light amber, in cans 16-17c, in barrels \$1.50; amber, in cans 15c, in barrels \$1.30. Clean average yellow beeswax, per lb. 42c."

CLEVELAND.—No new honey in market yet. The supply of old crop comb honey is light and demand very limited. Comb honey, fancy, per case of 24 sections, \$6.50-7.00; No. 1, \$6.00; No. 2, \$5.50. C. Chandler's Sons.

Cleveland, O., Aug. 13.

CHICAGO.—A few shipments of the new comb honey have appeared on the market and are selling;

at 30 to 35c per lb., according to grade. No new extracted, and what is on hand of last season's production is selling at 17 to 19c per lb. Beeswax 40c per lb., if yellow and free from sediment.

R. A. Burnett & Co.

Chicago, Ill., Aug. 16.

FLORIDA.—No honey for sale in our market now. We have a few barrels of dark honey, which we are trying to sell to bakers. We had quite a scare with foul brood this year, but the State of Florida came to our rescue with an appropriation of \$10,000. The bees are doing well now.

S. S. Alderman.

Wewahitchka, Fla., Aug. 16.

ST. LOUIS.—Very little new comb honey has so far arrived in this market. It is selling for good price. Some extracted arriving and selling fairly well. Extracted honey, amber, in cans 16c, in barrels 13-14c. Beeswax, clean, average yellow beeswax, per lb. 40c.

R. Hartman Produce Co.

St. Louis, Mo., Aug. 16.

TEXAS.—Bulk comb in good demand. Extracted going slow. Bulk comb honey, fancy, 20c; No. 1, 19½c. Extracted honey, light amber, in cans, 18½c. Clean, average yellow beeswax, per lb. 36c.

Sabinal, Tex., Aug. 11. J. A. Simmons.

DENVER.—New crop comb honey just commencing to come in and selling at the following prices to the retail trade: Comb honey, No. 1, white, per case, \$7.50; No. 2, white, per case, \$7.00; partly honeydew, \$5.00. Extracted honey, white, per lb., 22c; light amber, in cans, 20c; amber, 16-18c. We buy beeswax and pay for clean, average yellow, per lb., 38c cash and 40c in trade, delivered here.

The Colorado Honey Producers' Ass'n.
Denver, Colo.

HAMILTON.—Market is very uncertain. Old honey still in stock at 23 to 24c. New honey not yet sold. Price quoted 20-22c. Holders say stocks are light. Extracted honey, white, per lb., 22-23c; light amber, in cans, 21c; amber, 20c.

F. W. Fearman Co.

Hamilton, Ont., Aug. 5.

Montreal.—Apirists are asking 25c for dark and 27c for white clover honey. Dealers are not buying at anything like these prices. Honey should be cheaper this year, as the crop is fairly good, with demand slow on account of high prices. Comb honey, extra fancy, per case, 32c; fancy, 30c; No. 1, 28c; No. 2, 25c. Extracted honey, white, per lb., 23c; light amber, in cans 21c, in barrels 20½c; amber, 19c, in barrels 18½c.

Gunn, Langlois & Co., Ltd.

Montreal, Can.

TORONTO.—New honey is coming in slowly. Wholesale prices for new crop white clover honey are as follows: Extracted honey, white, per lb. 5-lb. tins \$1.35, 10-lb. tins \$2.70, 60-lb. tins, per lb., 26½c.

Eby-Blain, Ltd.

Toronto, Can., Aug. 18.

CUBA.—Extracted honey, light amber, in barrels, \$1.25; amber, \$1.25. Clean, average yellow beeswax, per lb., 37½c.

A. Marzol.

Matanzas, Cuba, Aug. 7.

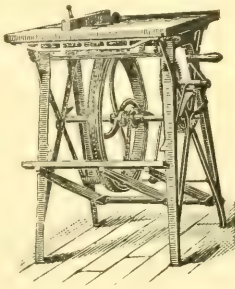
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
545 Ruby Street
ROCKFORD, ILLINOIS



GET YOUR CHURN FREE



17,000 Leader Churns, in use all over the country, have removed the dread of churning day by saving time and labor. They make more and better butter, 5000 unsolicited testimonials. A. N. Hollis, Lawrenceburg, Tenn., says: "Churning was a burden until we got the Leader. Now the children c'y to churn. We can churn in 3 or 4 minutes." Special dash—steel frame—light weight—easily cleaned.

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Sold under two plans. Simply order a trial churn now, without sending any money; then, when satisfied at end of thirty days, remit the price shown below, or take orders from your friends and let your commissions pay for your churn, thus securing your Leader Churn free.

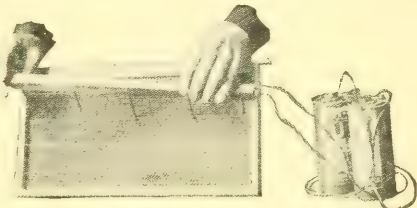
3 Gal. \$5.00 Churns 1-2 Gallons
5 Gal. \$5.50 Churns 3 Gallons
8 Gal. \$6.00 Churns 4 Gallons

Send No Money Order direct from this Ady checking size of Churns wanted. You pay express charge only. Nursery agents or farmer agents take trial orders. We deliver and collect; no money needed.

Novelty Mfg. Co., Box 722 Abingdon, Ill.

CHURNS IN 3 MINUTES

Electric Imbedder



Price without Batteries, \$1.25

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market. For sale by all bee-supply dealers.

Dadant & Sons Manufacturers Hamilton, Ills.

I. F. Miller's Strain Italian Queen

BEES FOR SALE. Northern bred, for business, from my best *Superior Breeders*; gentle, roll honey in, hardy, winter well, not inclined to swarm, leather-colored or three-banded. Queens a specialty; twenty-five years' breeding experience. Safe arrival and satisfaction guaranteed. Untested, \$1.00; 6, \$5.50; 12, \$10.00. Select untested, \$1.25; 6, \$6.75; 12, \$12.00.

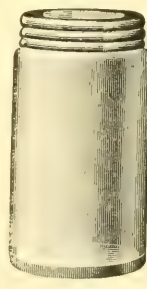
I. F. MILLER, Rt. 2, Brookville, Pennsylvania

TRADE NOTES

SPECIAL SALE ONE-POUND HONEY-JARS.

We have a surplus stock of these glass jars holding 15 ozs., put up 2 dozen to a case, including lacquered tin tops, in our St. Paul branch; also with Kretschmer Mfg. Co., Council Bluffs, Ia. The cost of these jars has nearly doubled in the past three years. Our present list price is \$1.60 per case. We offer for a short time the surplus stock available at \$1.25 per case, \$12.00 for 10 cases. Send your orders direct to the point nearest you where the stock is located, mentioning this notice and including remittance with your order.

THE A. I. ROOT CO.,
MEDINA, OHIO.



Let Us Furnish You

With What You Need

¶ We can do so promptly and accurately. Can save you time and freight charges.

¶ When you find you are out of the very thing you need, that you must have "right away," then is the time to drop us a card or send in your mail order.

¶ Why not do so right away so as to have everything right on hand when you need it? Don't delay. Order today.

Try Us for Promptness

F. A. Salisbury
1631 West Genesee Street
Syracuse, N. Y.

Winter Problem Solved by the Hive with an Inner Overcoat



The 18 colonies of bees, shown above on the roof of one of our buildings here in Grand Rapids, wintered 100 per cent perfect or without loss, during the winter of 1918-19. They were brought in by truck over forty miles about November 1st. An attempt was made to feed them, as they were short of stores, but without success as it was too late and cold. They were transferred from single-walled hives to the Protection Hives. They were left here all winter and the winds swept them from all directions. No special preparation was made as to young queens, young bees, feeding, etc. Every swarm came out a prime swarm, with the exception of one that was queenless and dwindled out in May.

It will pay you to try out a sample shipment of these hives this winter. Send for special circular and catalog.

Tin Honey-packages

- | | | | |
|-----|---------------------------------------|--|---------------------------------------|
| 2 | lb. Friction top cans, cases of 24 | 5 | lb. Friction top pails, crates of 203 |
| 2 | lb. Friction top cans, crates of 612 | 10 | lb. Friction top pails, cases of 6 |
| 21½ | lb. Friction top cans, cases of 24 | 10 | lb. Friction top pails, crates of 113 |
| 21½ | lb. Friction top cans, crates of 450 | Write for prices on friction top cans | |
| 5 | lb. Friction top pails, cases of 12 | and pails and 60-lb. cans, giving quantity wanted. | |
| 5 | lb. Friction top pails, crates of 100 | | |

A. G. Woodman Company
Grand Rapids, Mich, U. S. A.

SELLING HELPS

Now is the time to advertise your product and establish your own market. Let us help you with suitable advertising matter.

Our Printing Plant

The American Bee Journal has established a printing plant in charge of an expert printer who devotes his entire time to specialty printing for beekeepers. We take pride in our ability to turn out the best work with prompt service.

Labels

If you have not received a copy of our label catalog, send for one today. Attractive labels help to sell your honey. A good product in attractive packages will make permanent customers. Our stock labels are the best in the market and we are prepared to furnish distinctive designs on special order for customers' exclusive use if desired.

Supplies

Letterheads, envelopes, cards, tags, carbon sheets, everything in the stationery line for beekeepers' use.

Society Printing

Since there are weddings and parties in beekeepers' families we are prepared to furnish latest styles in invitations, announcements, calling cards, etc., on order.

A Specialty Shop

Ours is a specialty shop designed to serve the beekeepers' needs exclusively. Our shop makes a special study of the beekeeper's needs and guarantees your money's worth or your money back.

For Quality, Service and Satisfaction in
Printing, write

AMERICAN BEE JOURNAL
HAMILTON, ILLINOIS

GLEANINGS IN BEE CULTURE

SEPTEMBER, 1919

EDITORIAL

FROM PRESENT INDICATIONS, general freight rates will increase possibly as much as 45 per cent within the next few weeks. On large shipments this item is worth considering. Beekeepers will do well to take advantage of this advance warning.



Freight Rates going Up.

ELSEWHERE we have referred to the fact that we are feeding our bees brown sugar to stimulate. Many years ago A. I. Root found that he could use a good



Brown Sugar for Feeding.

grade of brown sugar for wintering bees, but he also discovered that Coffee A, which was the best grade of white sugar we had then, while a little more expensive was about as cheap and a slightly better winter food. There may be some beekeepers who will not be able to obtain enough white sugar to feed their bees for winter and yet can obtain brown. The latter is probably just as good for stimulating brood-rearing as the white, if not a little better; but unquestionably white is to be preferred as a winter food. We have about 1,400 colonies which we are building up for winter. The demand for bees and queens everywhere is very heavy, and we are finding that we can convert sugar into bees for less money than we can afford to go out and buy nondescript lots of bees, taking a chance of disease. By the sugar method we get clean, first-class, pure stock.

At the present writing it is doubtful if the beekeeper will be able to get sufficient white sugar for feeding. Our advice is to get all the white you can and make up the difference with brown. **If you don't have a fall flow, you better not waste any time in getting in your order for even brown sugar.**



Honey-crop Conditions.

THE REPORT we gave in our last issue editorially regarding the shortage of clover honey was nearly correct in spite of the report of July 1 from the Bureau of Crop Estimates, Washington, D. C., that it would be about normal. We have been

all over the country in the East, and we find that a number and perhaps all of those who reported to the Government that they would have a normal yield found that the drouth set in, and that the actual crop fell short of the earlier expectations. The writer has talked with beekeepers in Michigan and New York—States that, according to the Government reports, would have a normal yield; but the crop will run only from 33 to 75 per cent normal. It is our belief that over clover districts generally the yield of clover will run from 50 to 75 per cent.

Sage and orange were very short, and the few lots that are left are bringing good prices. There will be the average amount of alfalfa honey thruout the Western States with one or two exceptions. The shortage in some areas will be more than made up by surplus in others. There has been a fair to good yield thruout the Southern States, and above normal in New England; and the prospects are excellent for a good fall flow on account of the rains.

One of the factors during the Great War that had a tremendous influence on the price of honey was the scarcity of sugar. When the housewife, the candy, ice-cream, and soft-drinks people were unable to get sugar in sufficient quantities they turned to honey. Cheap molasses and glucose will supply only a part of the candy trade. The housewife can use only a limited amount of molasses. After that she must have a better form of sweet; and when sugar is not available she will turn to honey. At the present time there is a scarcity of sugar. Whether that scarcity is real or artificial we don't know. For several months back the wholesalers and jobbers have been saying that there would be plenty of sugar later on; but that plenty has not been forthcoming.

If the activities of the United States Government and those of the various States against packers who have been hoarding should release vast quantities of sugar, the price would have a tendency to decline. It might take a tumble. It is inconceivable that either could happen. It has been claimed that there is no sugar in storage—that what there is has gone to Europe. We don't know. We do know that there is a very serious unrest over the high cost of living. The reaction may send all prices downward,

including honey. We don't think so, at least not immediately.

Even the best experts of the country seem to be all at sea as to what is going to happen, and it is probable that one guess is as good as another. To summarize: If there should be a scarcity of sugar, and honey should be taken as a substitute, its price will advance. If, on the other hand, the price of all foods declines, it would be expected that honey would go down with other commodities. It is our guess, and only a guess, that one tendency will offset the other, and that the price of honey will remain stationary.



A MANUFACTURER of invert-sugar syrup is sending out what appears to be a circular to the trade.



Honey Adulterated with Invert Sugar.

From it we make the following quotation: "It has been found that honey can be diluted with two to three parts of invert sugar syrup, and the resulting product can not be distinguished from natural honey." Black type ours. While further on in the letter it is admitted that this adulteration should be "properly labeled," there are some people to whom such a letter might go, who, taking the hint, would not take the trouble to see that the mixture was "properly labeled."

In the first place, it is not true that a honey adulterated with invert sugar "can not be distinguished from natural honey." The United States Government, in a test case, clearly proved that chemists could and did detect the difference, with the result that the adulterator was made to pay a heavy fine. See Invert Sugar in the A B C and X Y Z of Bee Culture.

Buyers should, nevertheless, be on their guard against being "taken in" in the purchase of so-called honey containing invert sugar. While, of course, it is more difficult to detect adulteration of honey with invert sugar than it is to show adulteration with glucose, nevertheless a good chemist will not be fooled in either case.



THE LOSS from careless shipping each year costs the producer thousands of dollars. This



Hurting the Market by Careless Shipping.

waste is so entirely needless that no one can think of any possible excuse. The plain fact is that the gambling spirit in many producers causes them to attempt saving a few cents on cans and containers, while taking chances on a good many dollars' worth of honey.

Buyers in foreign countries as well as our

own are feeling the effect of our poor shipping. This we can ill afford when exports have so decided an effect on the honey markets. In foreign shipments even greater care must be taken than in home shipments. It has been claimed that not a single importer in Italy has been making any profit on the importation of American honey. If foreign importers are to purchase our honey from choice instead of as a last resort, we shall be obliged to make radical changes in our methods of shipping.

Every year quantities of honey are received at Medina in poor condition. In some cases the honey has been removed from the hives before being sufficiently ripened, and has accordingly fermented on the road, oozing from the cans and running all over the car floor. In rare instances, cans arrive in veneer jackets that are fit only for kindling wood on arrival. At other times the cases are too light or too large.

Recently a carload arrived in very poor condition. In almost no time Root's bees had located the car, and soon the air was filled with millions of angry, hissing bees, frightening the passers-by, stinging the horses, and causing great excitement generally. The Root fire company was called out. Some of the men refused to work, but soon two men were on top of the car and others on the ground, with the hose playing all about. The trouble subsided to some extent, but it was necessary to keep up the performance the rest of the day. Not until night did the bees allow the honey to be removed from the car. During all that time the honey was oozing from every crack and crevice. On opening the car the cases and cans were found in the most astonishing confusion. Later we learned that the car had been overloaded, and the contents had to be transferred at Cincinnati to another car. The honey had been leaking so that, during the process of transferring, the bees started robbing, and the freightmen in their frantic excitement threw the cases in like cordwood—endwise, sidewise, crosswise, any way to get there. After these cases had jammed this way and that on their trip to Medina, one may possibly imagine their condition on arrival.

Now that carload represented over \$10,000 worth of honey. Doubtless nominally the railroad will make good the loss. In reality it will come from the pockets of the beekeepers.

In this country the largest part of the honey is now shipped in 60-pound cans, and, if suitably packed, this is a good method. Bulged or rusty cans should never be used. Nor should anyone tolerate a round can, for if knocked over, they are soon battered to pieces. Moreover, the cans should fit the cases, leaving no space for chucking. On the arrival of carloads of honey, one will sometimes notice instances in which the cover has been nailed to the case, driving the nail straight into the can. The hole being at the top, the trouble is perhaps not in evi-

dence until en route; or in some cases, the nail doubtless does not at first penetrate the can, but by constant rubbing, finally causes the can to spring a leak.

Good results are obtained when two square 60-pound cans are shipped in strong wooden cases having the ends and middle partition of $\frac{7}{8}$ -inch stuff. Any cases lighter than these are too frail. In the West some have tried using fifteen-gallon steel drums. These are especially good for export shipment, and it is claimed that they are practically indestructible.

Most beekeepers doubtless know that there has recently been a proposal by the Interstate Commerce Commission to raise the rate on honey. This is exactly what could be expected while the present carelessness prevails. The beekeeper usually comforts himself with the thought that the railroads will stand all loss in transit. But in order to stand this loss, the railroads are compelled to put their freight rates high enough to bear the loss and still leave a margin of profit; which, plainly stated, means that the beekeepers and not the railroad company ultimately pay the bill.

It is impossible to keep down freight rates when beekeepers show an utter disregard of safety in packing. General freight rates are already high enough without an additional increase on honey. Last fall freight rates increased 25 per cent and now late developments indicate that another rise of from 15 to 45 per cent will be made within the next month or so.

The time has apparently come when beekeepers will be compelled, not only individually to be more careful in packing, but also collectively to look into the container proposition.



THERE HAVE PROBABLY been several more or less related diseases of adult bees



The So-called Disappearing Disease.

that have been described under the name of either disappearing disease

or paralysis, due to

their characteristics of the disappearing of the bees from the colonies and the paralytic symptoms of the sick bees, followed often by a disappearance of these various symptoms more or less without apparent cause.

The trouble often shows up at the beginning of a honey flow, when the fielders can least be spared. Sometimes when at its worst, and just as the bees are beginning to store honey, the super will be deserted and the colony will dwindle down to less than half-strength in the space of two or three days. The ground for roods around will be covered with bees crawling—or, rather, running—in nervous haste, for they seem to be trying to get away from something. Shortly the runners become listless, and cluster in little groups and then die. Then, apparently, the trouble will disappear almost as suddenly as it occurred.

Several severe cases occurred in southern California in early May; and, as the trouble came just at the beginning of the sage flow—the only place in the whole county where it was yielding—it cut off the crop instantaneously. But these severe cases seem to be the exception and often by studying the previous history of the apiary, some very good reasons may be found at least to help explain the condition.

When this disappearing disease broke out in the locality in southern California referred to we were called in to determine what it was. All we could say was that it was disappearing disease and that it would “disappear” in three or four days, and it did. We also found what we thought was sacbrood. We were able to offer no remedy or solution for the trouble.*

A small amount of European foul brood had shown up at the first visit in a few colonies. On the second visit, a week later, it did not look like European but like sacbrood. Here was a case where we needed the Government bacteriologist if we ever did, and we accordingly wired A. P. Sturtevant, who, as we have before stated, was sent to California from the Bureau to study bee disease. He was then in Sacramento, and we told him he must go. He was kind enough to rearrange his plans and go. He reports after going, that, while he saw a little European foul brood, he did find considerable sacbrood, but the dying off of adult bees had practically ceased. Whatever it was, he had some doubt about its being a true disease. Furthermore, a later report comes from Mr. Sturtevant that none of the several samples of sick bees taken at this place and from other similar cases elsewhere, which he examined upon his return to the laboratory in Washington, showed any indication of the presence of *Nosema apis*. This conclusively eliminates this organism as the culprit.

He was not prepared to give a definite opinion, as very little is known about these diseases, but offered the following purely tentative theories after having studied the case from all angles: (1) The adult trouble might have been brought on because the beesmen in the afflicted district did not requeen during the previous season, as they had formerly done. This might cause a weakening of the strain, and be due to the fact that the queens did not or could not populate the colonies with young bees before the winter season. (2) It had been an unusually hard winter, even for California, followed by a long dry spring. Therefore when the honey flow did come the old bees did not have the proper vigor. (3) There might have been some derangement of their digestive apparatus due to the sudden honey flow. Mr. Sturtevant found that there was an abnor-

*Colonies that were fine and strong the week before, just beginning work on a fine flow from sage—the only good sage we knew of—such colonies it was really too bad to see go down to less than half-strength.

mal amount of pollen present in nearly every hive. This, he suggested, might give them too much nitrogenous diet, and this diet might have been in part the cause of indigestion or of auto-intoxication — more likely the latter.

If the adult trouble had been due to a germ disease, it seems probable that it would not, according to Mr. Sturtevant, have struck **every** hive so nearly **at once** nor so suddenly, but probably would have developed more or less from one or more distinct foci.

As to sacbrood being present also, he thought there was absolutely no connection between that and the adult trouble, further than that the sudden depopulation of the colonies would so weaken them that a secondary disease could develop.

This showed up markedly after the bees began to die off. In Oregon there has been reported a brood disease of some sort along with a somewhat similar disappearing disease.

Mr. Sturtevant tells the beekeepers that there is no need of their melting up combs. So far as is known, he said, the best thing that can be done is to give young queens. This is good beekeeping practice under most conditions. He reports that at the time of his visit the colonies were rapidly building up, and that the beekeepers were very much encouraged.

We have since found the disappearing disease in other parts of the State, but in a much milder form. Along with it in one apiary was a case in which the honey was beginning to sour under the cappings, as shown by the bubbles of gas. At the same time, the bees were spotting up the hives with pale-yellow dysentery marks. An old beekeeper, who had had souring honey in his combs as a result of too much fog in years gone by, made the statement that one would always find bees in such cases crawling and dying in the grass, unable to fly; that the tops of the hives would be spotted with dysentery marks. This rather supports Mr. Sturtevant's theory of intestinal trouble.

Not only from California but also from all over the United States and parts of Canada we continue to receive reports of a so-called disease that affects the flying bees, seriously cutting down their numbers and materially lessening the honey crop. Whether reported as Isle of Wight, paralysis, or disappearing disease, the symptoms are about the same—quantities of crawling or dying bees out in front of the hives, sometimes listless, sometimes extremely active, with various symptoms of more or less importance.

Some authorities whose opinions are certainly worth considering claim the trouble is quite unimportant and not worthy our attention; but when we learn not only of honey crops cut down at least a third, but also of colonies (and in a few cases entire apiaries) being wiped out from this cause

(Herman Ahlers of Oregon lately reported a loss of 400 colonies), we believe it worth while to sit up and take notice.

Later.—Since writing the foregoing a large number of reports have come in from the Northwest, Oregon and Washington, showing that the so-called disappearing disease has been getting in its work. A heavy mortality has occurred in the Yakima Valley, Washington. One beekeeper, W. H. Tucker, with over 200 colonies of bees, which he said yielded him an income of from \$45 to \$50 per colony last year, reports that he will have no honey for sale this year and in addition he lost 80 colonies. Others lost in like proportion.

There seems to be considerable evidence to show that the poison used for spraying fruit trees is one of the causes. Some good orchardists believe it is good policy to spray several times during the season, outside of the usual period of spraying just before and after blooming. During a time when the bees are unable to get water they will sometimes appropriate the dews that fall on the leaves of the poisoned fruit trees. In other instances the poisons fall on the cover crops beneath the trees. These cover crops may consist of red clover or alfalfa, and if so the bees will get a considerable amount of the poisons that fall down under the trees; and there are numerous instances to show that bees are poisoned in this way.

In Massachusetts, where the gypsy moth has done so much damage on the shade trees, poisonous sprays have been used to hold them in check. A large number of bees have been poisoned as the result of these sprayings. There is now some movement on foot in Massachusetts looking toward putting some repellent into the spraying liquids so the bees will not go near the trees that are sprayed. Various forms of sulphur and creosote have been used in the spraying liquids with most excellent results.

There are others in various parts of the country who have suffered from the so-called disappearing disease who say that there has been no spraying of any sort in their respective localities, and that they are sure that what they have had is the real Isle of Wight—a disease and not anything due to poisons nor to indigestion.

While only good guesses can be offered, the editor is coming more and more to the conclusion that whatever we have in America may be due to several causes; namely, poisons, indigestion or auto intoxication, and old age.

As pointed out elsewhere in the article about Harry Warren, too many beekeepers fail to have a large force of **young** bees at the time the harvest opens. When the flow does start, if the colony is made up of old bees they very soon die off and disappear.

We hope our readers will keep us informed, giving us all the information possible; and if there is any disappearing trouble, see if any one is spraying or has failed to have young bees at the time of the harvest.

MOST of Nevada is mountainous and much of it is desert country; but Harry Warren, the comb-honey wizard, lives in one of the finest alfalfa sections of the State, about 75 miles from Reno, between the towns of Wabuska and Yerington. As one approaches his home he sees a grove in the center of large fields

NEVADA COMB-HONEY WIZARD

Alfalfa Comb Honey. Alfalfa Hay, Alfalfa Seed in Carlots

By E. R. Root



Fig. 1.—Three big tractors and two threshing machines held in reserve for operating the big alfalfa ranch run for hay, seed, and honey.

of alfalfa—alfalfa for hay, alfalfa for seed, and last but not least, alfalfa for comb honey. In order that the Union Land & Cattle Company and the subsidiary company, the Union Honey Company, may carry on their extensive operations, they have the latest and best machinery available, including mammoth tractors, gang plows, threshing machines, big, heavy, stocky teams, 25 employees, a general manager in the person of Mr. Warren, and a superintendent or foreman in the person of Truxton V. Damon. The whole outfit, teams, men, and machines, apparently work like clockwork.

How the Bees Make Alfalfa Seed.

The combination of bees, alfalfa hay, and alfalfa seed-raising goes well together. It was formerly supposed that bees performed no useful work in pollinating the alfalfa blossoms. Indeed one or two experiment sta-

tions went so far as to state that there was no evidence showing that bees had any effect in increasing the amount of seed from the alfalfa; but Mr.

Warren has demonstrated that with plenty of bees he not only can double, but more than triple, the amount of seed grown per acre. His evidence is so overwhelming that there can be no possible doubt on the question any further because he produces carloads of alfalfa seed. It is a pretty safe rule to give out, when nature furnishes a large supply of nectar as in the case of alfalfa, that there is "method in her madness." She wouldn't do it without a purpose, and that purpose is to make more and better fruit, or seed, as in this case.

When nature desires the visitation of certain insects, she provides doorsteps as well as color, nectar, or pollen in her flowers; and sometimes she supplies all of them, as she does in the case of the alfalfa. Every one of the means that she employs is calculated to attract bees or some insects, and it is evi-



Fig. 2.—One of Mr. Warren's honey trucks loaded with bee supplies ready to go to an outyard to connect with him and his crew who are shaking the yard into skyscrapers. The men had just changed a tire and were about ready to start out.

dent that nature considers bees not only necessary but essential; and therefore she puts out special inducements for bees. Mr.

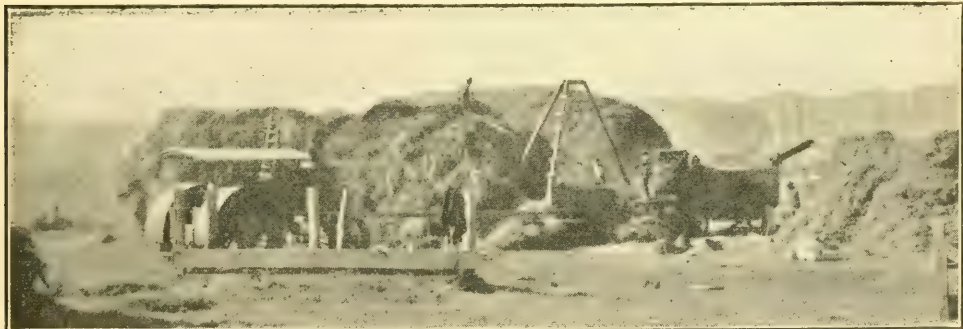


Fig. 3.—A few of the immense alfalfa haystacks of the Union Land & Cattle Company. In the foreground are one of their tractors and a threshing machine, threshing out alfalfa seed. It has been proved that bees make it possible to increase the seed crop 300 per cent in this valley.

Warren has proved beyond a doubt that nature, having put out these inducements, knows what she is doing.

Warren's System of Comb-honey Production.

G. M. Doolittle nearly all of his life stressed the great importance of having powerful colonies made up of young bees of the right age at the **right time**. (Notice the black type.) He used to say that many beekeepers made the mistake of having a large force of bees at the **wrong time**. From extensive observation all over the United States for the last 30 years, I know that he was absolutely right. I observed that in California, for instance, many beekeepers had colonies which were too weak for the orange flow but strong enough for sage. They would get a light yield of orange and a good flow of sage. The same holds true of the alfalfa flow. Again the reason why many fail to get a good crop from alsike or white clover is because they don't have colonies strong enough when clover does come. They will often have hives with a large force of bees but **after** the clover is out of bloom. Better late than never is a poor rule here because it generally means failure.

One of the strongest and most consistent advocates of powerful colonies made up of young bees of the **right age** at the **right time**

is Harry R. Warren, the subject of our sketch. According to Mr. Warren, for his locality at least, the average queen will not give him the working force he wants at the first bloom of the alfalfa, so it is his policy,

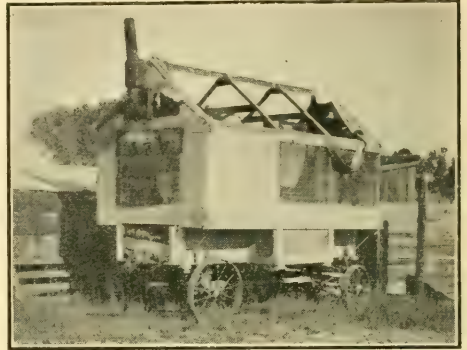


Fig. 4.—Mr. Warren's portable extracting house that he formerly used. He now uses a central extracting station with power equipment, to which he hauls the combs; but, as he runs mainly for comb honey and almost exclusively for it this year, he will extract very little comparatively.

as outlined in our last issue, to throw the strength of two, three, or more queens or



Fig. 5.—Foreman Truxton V. Damon, sitting at the wheel of one of the light Ford trucks. In the background is a heavy truck with one of the men in the act of loading hives and supers. In the extreme background are some of the buildings where the workers of the ranch are housed. At the extreme right is a tent-covered sleeping-room that Mr. Warren himself uses, and the fact that he uses this outdoor sleeping-room the year around may explain in part his wonderful vitality and endurance.

colonies into one, and when he gets thru shaking and the bees are fairly at work in the supers, he has regular skyscrapers. The colonies that are producing comb honey look like tall shafts peaking up here and

often require a stepladder or a box to enable the operator to put on and take off supers.

I knew that our readers would ask for further information and so I placed before



Figs. 6 and 7.—To understand these properly, refer to Fig. 8 with the legend beneath. These stacked-up supers stand on top of a single shallow brood-nest. These piles contain from two to five colonies all in one. The unsealed brood and very young bees are devoted only to increase, while the entire working force of two or three colonies, with the sealed brood as much as possible in one brood-nest, is forced into one of these piles here shown.

there over a little plot of ground. In the early part of the season there will be a large number of stands; in the midst of the season the colonies' numerical strength drops down, leaving just a few boomers that

Mr. Warren a few questions, to which his foreman, Mr. Damon, replies as follows:

In uniting, the union may be made with from two to five hives, depending upon the strength of the individual hives, the principal idea being to get at



Fig. 8.—A view showing four of Mr. Warren's colonies run for comb honey. Just about as the main flow begins a group of two, three, or more of these colonies are shaken into the best one, when the supers are piled stepladder high, all on one hive. The apiary after it has gone thru this treatment looks like Figs. 6 and 7, with large gaps between the piles where the other hives stood. Mr. Warren follows no invariable rule any further than to bring every colony up to a honey-gathering pitch. To do this he may draw from, two, three, or more colonies.

least one big producer out of the lot. Immediately upon such a union, we endeavor to add the supers in order to provide ample room for the strong colony, and also to eliminate the possibility of swarming proclivities. We do not regard queens, and, as you mention, let them fight it out.

We do not usually re-divide after the harvest, as you state in the August issue, since this method would create an untold amount of extra labor; and besides, we contend that a good, strong colony with sufficient stores will winter better than a weak one. Besides, such a colony invariably winters well and turns out in fine condition in the spring, giving dividing possibilities, with prospects for two or even three producers out of the one, providing they are properly and timely manipulated.

In adding empty supers we have no definite plan to follow. Sometimes we put them below the partly filled, and again above. The transaction just depends upon the amount of time we can spare. Personally, I am inclined to believe that the best method is to add the supers to the top. This condition usually results in complete and nicely filled sections, as the natural instinct of the bee seems to inspire it to finish one job before taking on another. Of course, if the bottom supers are completely filled, then it is undoubtedly advisable to insert the empties below in order to prevent the unnecessary travel stain and extra distances before reaching the place of deposit.

At the present writing it looks as if our crop will run in the neighborhood of ten cars.



THERE is probably no beekeeper who has escaped entirely the irritation of finding unfinished sections of comb honey at the close of the

honey flow. In this part of New England the vagaries of flow make this nuisance quite a serious drawback to obtaining the maximum profit from section honey. This fact and the breakage loss in shipping comb honey to retail trade inspired the invention of the "honey bonbons," which have been

AN OLD FRIEND IN NEW GUISE

*Honey Bonbons Bring Novelty Prices.
Comb Honey Cut in Squares, Drained,
Wrapped, and Sold in Fancy Boxes*

By Dorothy Quincy Wright

comb honey not finished enough to market, making twelve out of a four-by-five section. The squares not wholly capped were discarded, and the perfect

ones dripped overnight on the racks from the extractor. Each square was then wrapped in wax paper and packed in a fancy one-pound candy box, 12 to a box. The daintiness of the package and the fact that stickiness was eliminated in eating the honey, made these boxes so popular for gifts and



The squares of honey are wrapped in wax paper and packed in a fancy one-pound candy box, twelve to a box. These boxes are quite popular as gifts and prizes.

enthusiastically received as a novelty in the candy line.

My Start in Bonbons.

When the idea was first developed I simply cut into inch squares the sections of

prizes that the demand soon exceeded the supply. In 1916 I changed over my entire section-honey equipment to the exclusive production of this form of comb honey, and so when the sugar and candy shortage creat-

ed an inflated demand for all kinds of sweets I was able to take full advantage of the increased orders.

Necessary Change in Management.

In making this form of comb honey a staple crop instead of just a by-product some change in the management of the colonies was necessary. As appearance is of the utmost importance I run the colonies for the light-colored honeys only, aiming for the fruit bloom, clover, and clethra flows. The honey must also be mild in flavor, as it is eaten "straight." A mouth-



A small oil stove with a deep kettle of boiling water in which several long sharp knives are kept in readiness when cutting the squares of honey.

ful of some of these honeys would almost choke the victim if eaten without bread or some neutral substance. As soon as the clethra begins to flag, preparations for the next season's campaign are begun. The hives are requenched, increase is made if wanted, the combs are examined, and excess drone comb is removed. I always count on a heavy goldenrod flow and use this to make bees for next season and to give the colonies a tremendous surplus for winter and spring so they may be at full-gathering capacity when the fruit flow sets in. The brood-nest is always a two-story eight-frame one, over which are the excluder and three or four shallow extracting supers with unwired frames and full sheets of extra-thin super foundation. As soon as the supers are filled they are removed in order to avoid travel stains, but empties are put on immediately. With this management the yield should average nearly 20 per cent more than with section supers, and the swarming fever is kept in check by the large storing space. We cannot get the great increase in yield possible when the colonies are run for extracted honey, as the comb must of course be made fresh each time.

Black bees make the most attractive honey for this purpose, as the air space which they leave between the stored honey and the capping gives the comb a dazzling whiteness which is most attractive to the eye. This should not prevent anyone from Italianizing, as the many vices of the blacks offset this one advantage.

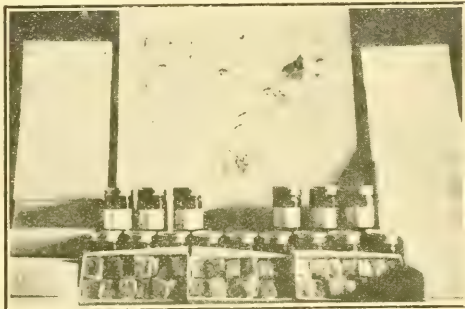
Actual Process.

When sufficient filled supers have accumulated they are removed to a large work

table. A small oil stove, with a deep kettle of boiling water in which are several long sharp knives, should be in readiness. The knives should always be hot and clean. I have designed and tried out several forms of tin implements to cut the whole frame at one stroke, but none of them have been so successful as the ordinary thin knife. The frames are laid flat on racks of $\frac{3}{8}$ -inch wire screening and the whole combs cut out. These are then cut three times lengthwise, making four long strips of comb. Each of these strips is cut into 15 pieces making sixty squares per frame. Thus we get from a full eight-frame super filled and capped perfectly 480 squares, which when packed 12 to a box gives 40 boxes as against the 24 wooden section boxes when the hive is run for comb honey in the regular form and when each section in the super is a perfectly marketable one. This increased production more than makes up for the greater cost of container and the advertising necessary to float a novelty.

The work of cutting and dripping should be done on a warm, dry day. The squares drip over night and the next day are wrapped in waxed tissue paper. The drip from the squares is strained and added to the regular extracted honey. The one point in preparing this form of honey which must be emphasized over and over and impressed upon one's helpers is that of absolute cleanliness and daintiness of preparation, for the honey must be handled and only the strictest surgical cleanliness should be tolerated.

The boxes are ordered from a local box-maker. They are slightly shallower than



Such fancy packages bring novelty prices. The boxes are made to order and are slightly shallower than the one-pound candy box, being made to accommodate exactly the depth of the honey comb and its wrapping.

the one-pound candy boxes, being made to accommodate exactly the depth of the honeycomb and its wrapping. Each holds ten ounces net. The name of the apiary and the weight are printed in green in one corner, and a clover leaf together with the blossom is painted beside the lettering. The wrapping and the packing are done the day after cutting and this is the most expensive part of the work in point of time. By standardizing and planning and not under-

taking too small a unit of work at a time, a fairly speedy system can be evolved. About 20 boxes can be painted and filled per hour.

Does It Pay?

We reckon that the honey should not cost over two cents per box to produce. The box and paper will cost nearly six cents more, making a total cost of about eight cents per box. If the cost of section honey is computed we shall find the overhead charges on producing honey about three cents a section (the number of unsalable sections makes this item high in our region). Mr. Crane gives the cost of container, or section box, nearly a cent; foundation, the best part of another cent; and carton, still another cent, making a total of nearly 6c a section. In neither case does this cover the cost of shipping cases and crates. Thus we have with our system 40 boxes per super at a production cost of seven cents per box, as against the regular system of 24 wooden section boxes per super at six cents per section, the first method also yielding an extra superful by the greater speed with which the bees will enter the long frames.

The boxes formerly sold for 35c, but last winter went to 50c, thus keeping pace with section honey.

As in the development of any merchandising idea the second part of the enterprise, the advertising and marketing, is often the harder part of the undertaking. It must be

remembered that one is floating a novelty, a luxury at the price of such; and the public is paying not only for the food in the box but for the appeal to the eye and for the fact that it is "something new." It would be folly to try to sell such a product in a community where the last cent of value is demanded for the money spent; but where one can be sure of a high-class patronage and can give something different, a little better than the average and always dependable, there is no reason why any novelty in honey-packing should not find a ready sale. I have found an excellent way of disposing of the honey is to place it at not too many high-grade shops where a poster and one open box will usually sell it from the start. If the patronage is a floating one, such as the motor trade, the advertising spreads automatically.

These notes are of course only a suggestion as to what can be done in the way of selling fancy honey. This particular package was inspired by a remark made casually by Dr. Gates at Amherst that there ought to be no reason why a fancy grade of honey put up in an attractive box should not bring as high a price as a box of Page and Shaws. It is a case of studying one's market and giving it what it wants, and while it may take strength of mind to feed back all the slightly off grades of honey it is just turning poor honey into good bees with which to gather the fancy crop.

Chelmsford, Mass.



A FULL description of milkweed flowers and of their adaptation to the visits of insects will be found in the A B C and X Y Z of Bee Culture,

page 500; the present article will consider the milkweed only as a source of honey. While this genus is listed in the honey flora from Michigan to Texas and from North Carolina to California, in most localities it is not sufficiently abundant to yield a surplus and the honey is mixed with that from other flowers. In California Richter informs me that it is esteemed of great value and is the source of much honey. While widely distributed in that State it is not found near the coast.

Abundant in Michigan.

But there is no other section in this country in which milkweed is so abundant and important, or has so great a future before it in its relation to bee culture, as in Northern Michigan. P. W. Erbaugh, deputy apia-ry inspector, writes that the counties in the northern part of the Lower Peninsula usually contain sufficient numbers of this

MILKWEED AS A HONEY PLANT

*Spreading Over a Wide Area.
Yields Considerable Honey of
Good Color, Flavor, and Body*

By John H. Lovell

plant to yield a fair surplus. In Antrim, Charlevoix, and Cheboygan Counties they consider the milkweed as one of their best honey plants. Ira D. Bartlett

says that it is also plentiful in sections in Emmet and Grand Traverse Counties. The plants grow on any kind of soil from white shore sand to heavy clay, but as with clover the heavy soil gives the most nectar.

The milkweeds are by many regarded as noxious weeds, and the highway commissioners of Michigan require the plants to be cut; but despite all regulations to the contrary they are steadily increasing, even on farms where efforts are made to check or destroy them. On the other hand, there are farmers who claim that they are a benefit and improve the soil. To a man coming from the prairie States, says Pellett, where milkweeds grow only occasionally, it is astonishing to see them in such abundance. The land in places is completely covered by them, almost to the exclusion of all other vegetation.

After the forests have been lumbered,

large areas are soon covered by dense thickets of raspberries; and in sections which have been burned over there springs up a rank growth of fireweed or willow-herb. But in a few years these plants become less vigorous, and other forms of vegetation begin to take their place. With the disappearance of the forests and the increase of the area of land under cultivation, the time must come when the raspberry and the fireweed will no longer be the chief reliance of the beekeeper of northern Michigan. To what other sources shall he then look for his surplus honey? In southern Michigan the plants which furnish most of the surplus are

Milkweed Honey.

Already the milkweeds cover much land and are steadily spreading. There are several species, but the most common one is *Asclepias syriaca*, a tall hardy plant with deep roots, which multiplies freely from seed. When once it has obtained a foothold, it is almost impossible to eradicate it. It blooms from early in July to the middle of August. L. C. Gordon of Bellaire, who obtains annually a surplus of 50 pounds of milkweed honey per colony, writes that the flow of nectar is not affected to any great extent by the weather. The color, he says, is very light, in fact, about the lightest honey produced in this section, and is very thick if left to ripen thoroly.

Milkweed honey is described by Ira D. Bartlett of East Jordan as follows: It is very light in color, except in unfavorable seasons, when it is a little darker, altho it would always be classed as white. The flavor is something like clover but stronger, becoming milder with age. The body is good; in hot dry seasons it is very heavy.

Thru the kindness of Mr. Bartlett I have received a sample of pure milkweed honey, which, he says, is slightly darker than the average. The comb is white, but the extracted honey is tinged with yellow, which would promote its sale with most buyers rather than otherwise. It had a very pleasant flavor, not at all pronounced, leaving a fruity tang perhaps a little suggestive of quince. We prefer it to clover honey, and it is certainly well suited for table use, deserving to rank with the best of our northern honeys.

As much as 15 or 16 pounds of milkweed honey has been stored in a single day; but 4 to 6 pounds is nearer the average. On page 594, Gleanings, August 1, 1914, the reader may see a photograph of an apiary in Antrim County where the yield of this honey was 95 pounds per colony. An average of 11 pounds per day for ten days is said to have been obtained in some instances.

Waldoboro, Maine.



Milkweed (*Asclepias Syriaca*.)

white clover, alsike clover, and basswood; but basswood in this region does not yield annually, as every other year it fails to bloom freely, and is not only not abundant, but is becoming rare. White clover does not grow well in the sandy soil of northern Michigan, and it will be long before alsike clover will be extensively planted. Thus bee culture here is likely to be largely dependent on milkweed.

BEEKEEPING IN ONTARIO

*Large Productive Apiaries, Many
Producing an Average of Two
Hundred Pounds*

By G. G. Gemmell

ONTARIO, one of the great unwritten honey localities of the world, may be divided into three regions. The well-cultivated fields and undulating areas of the southern part of the province produce large quantities of alsike clover and buckwheat honey; while the wild rocky timber regions of northern Ontario give rich yields from fireweed and other wild bloom; and the Niagara peninsula with the aid of bees produces large quantities of plums, grapes, and other small fruits.

In many parts, beekeeping is still primitive as seen in Fig. 1, but where intensive



Fig. 1.—James Wrightson's yard of 200 box hives. bee culture has been practiced, large productive apiaries are operated successfully as will be seen by Fig. 12. Beekeeping, how-



Fig. 3.—This thickly populated yard of J. S. Schrank, ex-bee inspector of Bruce County, contains 300 colonies.

ever, is making great bounds toward a general up-to-date system. The box-hive beekeeper is beginning to introduce standard hives into his yard and is beginning to read good bee literature. The beemen are also getting together and forming large beekeepers' associations. This is one of the best methods for promoting profitable beekeeping.



Fig. 2.—Deep hives used by A. E. Jones. These 162 colonies produced 200 lbs. per colony last year.

The enthusiasm of these beekeepers is commendable. James S. Schrank, ex-inspector of Port Elgin, is a fitting example. For five successive years, Mr. Schrank suffered a failure in the honey crop; but still he did not give up his faith in bees, and for this faith he was justly rewarded in the sixth year when his bees harvested a bounti-

ful crop. Mr. Schrank describes it as having filled every can, kettle, and tub that his good wife could spare, and then, having no room to store more, he lost about two tons.

This spirit of optimism is shared by nearly all the beemen of Ontario. In some localities this year's crop is a total failure



Fig. 4.—Jumbo Buckeye 10-frame hives now being adopted by T. E. Hodgins.

but these men are not down and out. They are looking forward to a bigger and better crop next year. The failure of a year's crop probably means more to a beekeeper in Ontario than it would in many other localities, as every man's purse for the past five years has been backing the Canadian army, and the failure of a crop means a still further bleeding of the purse. But above all, the beekeeper is still smiling and looking for better things to come.

Not Much Disease.

Disease has as yet not been very active in Ontario, altho in the southern part a few traces of American foul brood are evident;



Fig. 6.—The prosperous-looking honey-house is owned by A. E. Jones of Paisley. It contains an air-tight room in which Mr. Jones disinfects his combs.

but there is nothing near the per cent found in many parts of the United States. Of course, good methods are taken to prevent its spreading. Besides the usual inspector, a law governing the sale of bees prevents anyone from selling infected bees. There is also a hope among many of the beemen that in the future a license will be charged for every hive. However, as long as these

men continue their good work, they have no cause for worry.

Crop Conditions.

The crop of this year is far below that of last year. Bruce County, a section that seldom fails and a place where beekeeping is carried on extensively, seems to be faring badly on account of the dearth of a honey flow. It may be stated here that this section affords pasturage for yards of all sizes. A. E. Jones of Paisley has a yard of 162 colonies. J. H. Sieffert of North Bruce has a yard of 200 colonies, while J. H. Schrank of Port Elgin has 300 colonies in his yard. These large yards produced an average of 200 pounds per colony last year. These men are hoping for a half crop this year.

Chute Saves Steps.

The picture on page 574, Fig. 11, shows a chute used by T. E. Hodgins & Son of Kincardine. This is made of half-inch pine about five inches deep and perhaps seventeen inches wide. Besides saving a great deal of time, this chute saves a great many steps in moving the supers and hive-bodies from the upper-story windows of the storehouse to the truck. When thru loading supers the chute is pulled up and left in the storeroom.

Large Hives.

A prevailing style of hive for extracted-honey production is one containing a deep



Fig. 5.—The double-walled hive used by E. Clark of Ingersoll. In summer he removes the packing from these hives.



Fig. 7.—To aid in distinguishing between a honey-board and a Porter bee-escape board, E. V. Tillson paints one red and the other blue.



Fig. 8.—Empty supers are used by J. H. Sieffert as shade frames.

brood-frame. The Jumbo hive is quite popular, and some very good beemen are going further by using still larger hives. R. F.

Holtermann of Brantford is using a 12-frame hive successfully. In general the large hive is gaining ground, and rightly so. It gives a good queen plenty of room to raise a large working force, to a great extent prevents swarming, and makes a good foundation for a skyscraper. Fig. 9 shows a corner of one of the Hodgins outyards. Note the Jumbo hives used as hive-bodies. Af-



Fig. 9.—A corner of one of Hodgins' outyards of Jumbo hives.

ter the fine success that Mr. Hodgins has had with these hives, he is now adopting Buckeye Jumbo hives packed with granulated cork. He believes this packing will be sufficient for wintering in this climate.

Fig. 2 is a part of the yard owned by A. E. Jones of Paisley. This yard contains 162 colonies in hives that are nearly square. Mr. Jones gets excellent results from



Fig. 10.—This neat-looking yard is owned by Earl Clark of Ingersoll. Clark is a baker by trade and besides producing thousands of loaves of bread a day is managing an apiary of 75 colonies.



Fig. 11.—The time-saving chute used by T. E. Hodgins and Son of Kincardine. The chute is made of half-inch pine, is five inches deep and about seventeen wide. When thru loading, the chute is pulled up and left in the storeroom.



Fig. 12.—This yard shows the good management of its owners. It is owned by T. E. Hodgins & Son of Kincardine.

these deep frames, as will be seen by the number of supers; and this picture, it should be remembered, was taken on July 8 in the fore part of the honey flow. The luxurious honey-house in Fig. 6 is also an example of the prosperity of Mr. Jones' bees.

Other Yards of Interest.

E. Clark of Ingersoll, owing to the cramped quarters, has his bees in two long rows as will be seen in Fig. 10. Mr. Clark has surprisingly little trouble with drifting and as he always introduces laying queens he has no trouble with queens entering the wrong hive after the mating flight. However, he intends moving some of his bees to an outyard next spring. Fig. 5 shows the type of hive he uses for wintering. This hive has not been entirely satisfactory and Mr. Clark is now adopting the cork-packed hive shown in the fore part of Fig. 10.

The primitive yard shown in Fig. 1 con-

tains about 200 colonies, all in box hives. They are owned by James Wrightson of Paisley. Mr. Wrightson winters his bees in sawdust-packed hives. In consideration of the antique hives, he has good success.

The shade frame on the hives in Fig. 8 is used by J. H. Sieffert of North Bruce to prevent the sun from overheating the colonies. The frame is made the same size as the hive, from six to eight inches deep, and is placed above the inner cover. Mr. Sieffert being a handy man has many labor-saving devices in his yard. He has 200 colonies of excellent leather-colored Italians.

Fig. 7 shows a very good scheme used by E. V. Tillson of Tillsonburg. Mr. Tillson paints his queen-excluders red and his bee-escape boards blue. In this way he has no confusion in taking off supers of honey. Mr. Tillson also uses the Jumbo hive successfully. Ingersoll, Ont.



OLD ABANDONED APIARIES

Visit to Zimmerman and Crowaer Gives Points on Roadside Selling, 12-Frame Hives, and Ventilation

By E. R. Root

ONE day in May Chas.

F. M. Stone of Lamanda Park, and Frank McNay of Pasadena, formerly of Wisconsin, and myself, drove up into Sycamore Canyon near Los Angeles, where there were two old abandoned apiary sites among the sages. The accompanying pictures show what we found—empty hives and frames that the owners had not come after, and an old solar wax-extractor of ye olden days, somewhat typical of sun wax-melters that have been and are even yet used in the State. Last, but not least, we discovered that runaway swarms had found lodgement in some of the old hives stacked up.

Runaway swarms are very common in California. Where old hives are left it is not uncommon to find them full of

bees. What Mr. Stone and McNay found was no great surprise to them. There were bees there. They "met" us in a way that indicated that they thought

they owned the whole ranch.

As Mr. Stone and I were driving down one of the highways we found along the roadside a young woman, Miss Beula

Crowder, selling her father's orange honey produced this year. She was averaging sales of \$25 a day, and getting, in Mason jars, at the rate of 39 cents per pound. No enterprising young man in need of a farm-ette beekeeper to sell his honey or help in the apiary or make his flapjacks need apply, for the reason it may be too late. While the stand is not elaborate or expensive, it does the business, as the receipts



Fig. 1.—The girl who was selling her father's new orange-blossom honey at the rate of 39 cents a pound, in Mason jars, along the roadside. The apiary in the background, not shown here, is shown in Fig. 11. Her sales averaged about \$25 a day.



Fig. 2.—An abandoned apiary site, with empty hives and frames and extracting-house up in Sycamore Canyon, near Los Angeles. The frames were whittled out of hard wood. The original owner died a year or so ago; but some stray swarms of bees had found homes in some of his empty hives, as will be seen in Figs. 4 and 5.



Fig. 3.—A runaway swarm that had just started housekeeping in a stack of empty hives of the old Sweet apiary of Sycamore Canyon. The bees evidently thought the hives needed "sweetening" up again. Mr. Stone is inspecting.



Fig. 4.—Stone and McNay looking for more runaway swarms in the abandoned apiary shown in Fig. 2. Mr. Stone has just located a bunch of bees on those old empty frames.



Fig. 5.—Another runaway swarm in that stack of empty hives of the old Sweet apiary. So much comb had been built that it extended down into the lower hive body.



Fig. 6.—An old California solar wax-extractor found in that abandoned apiary referred to in the legends under Figs. 2 and 4. Even now such wax extractors are found in some parts of California.

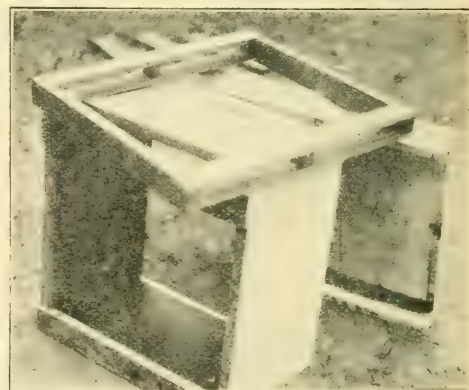


Fig. 7.—The ventilating-frame which goes between the two stories as shown in Fig. 10 is here shown resting on top of the end of the hive-body. It is open at the sides and closed at the ends to give ventilation between the two stories.

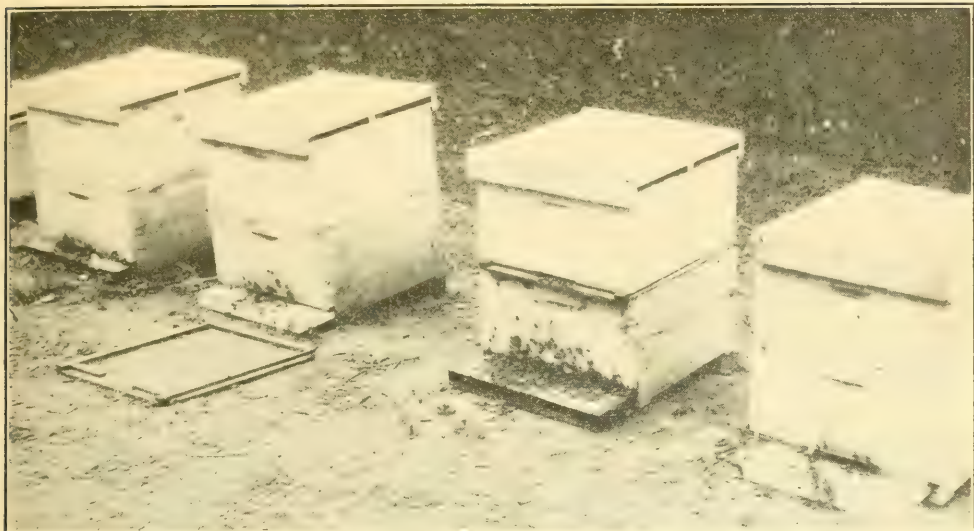


Fig. 8.—Some of the twelve-frame colonies that do not know enough to swarm, as referred to in the legend under Fig. 11. They keep right on piling in the honey. Notice the ventilated covers, which the owners say they will adopt exclusively in place of that shown at the extreme right.

show. Here is a suggestion for some beekeepers' wives and daughters.

Ten- Versus Twelve-frame Hives.

After interviewing Miss Crowder we hunted up her father, J. F. Crowder, of Zimmer-

man & Crowder, of Pasadena, and the apiary in the background where this honey was produced. Yes, indeed, there was a very pretty apiary made of three- and four-story colonies about evenly divided between ten-frame and twelve-frame colonies. Dare I tell it? and would you believe it? the twelve-framers hardly swarm at all, while the ten-framers swarm—well, just as all ten-framers do, right in the same yard with the same honey flow and the same management. Both Zimmerman and Crowder testified to the comparative freedom of the big hives

from swarming. It is the same old, old story that the Dadants, Holtermann, and others have told us for years. The main objection seems to be that they are odd-sized and too big to lift.

Mr. Crowder testified further that he had always noticed that a hive of any size would be full of brood and honey in a

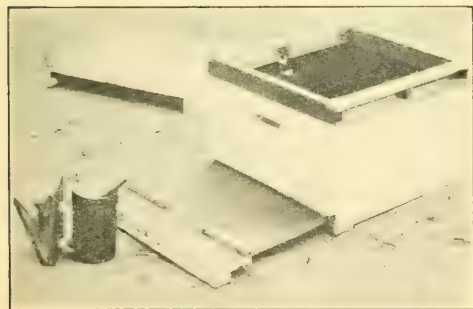


Fig. 9.—The J. F. Crowder scheme of ventilation. See Figs. 7 and 10. The floor-board draws out, leaving the bottom open that is covered by wire cloth in the bottom of the hive-body.

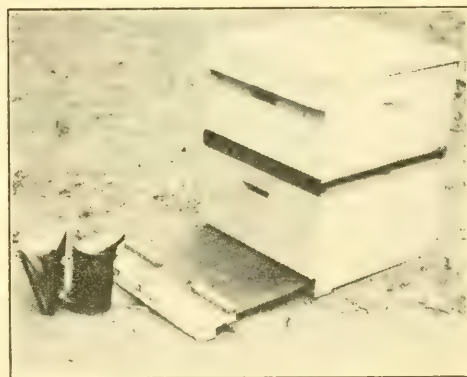


Fig. 10.—The whole scheme of ventilation, in effect, except that the floor-board is removed entirely when the entrance is closed up. The removal of the floor-board exposes the bottom screen, which is always under the brood-nest. After the hives are moved, the floors are shoved back into place, closing up the bottom, after which the ventilating-frame is removed from between the two stories.

man & Crowder, of Pasadena, and the apiary in the background where this honey was produced. Yes, indeed, there was a very pretty apiary made of three- and four-story colonies about evenly divided between ten-frame and twelve-frame colonies. Dare I tell it? and would you believe it? the twelve-framers hardly swarm at all, while the ten-framers swarm—well, just as all ten-framers do, right in the same yard with the same honey flow and the same management. Both Zimmerman and Crowder testified to the comparative freedom of the big hives

good season. He argued if a twelve-frame hive under the same conditions, with the same honey flow, same management, and with the same queen, gave 50 per cent more

honey than an eight-frame, couldn't we afford to do a little more lifting?

A Unique Scheme for Ventilating Hives.

Mr. Crowder showed Mr. Stone and me his scheme of ventilation, that is about as unique as anything we have seen for moving strong colonies in hot weather—and they have a lot of that to do in California. Mind you, the weather is hot, and the colonies two-story and strong, just off the orange and ready for another flow after moving. Well, here is the scheme:

He makes all his brood-nests with permanent bottom screens. While the hives are in service a removable floor-board slides over this screen, leaving, when in place, the usual $\frac{3}{8}$ -inch space between the bottoms of the frames and the floor. It will be seen

available by drawing out the floor-board, and this ventilating-frame between the two stories, are enough. The half-tones will make the idea plain.

A Caution About Large Hives.

Before closing I wish to enter a caution. Large hives, particularly the Jumbo ten-frame, are selling as they never did before. I believe that in districts where swarming is common the restriction of egg-laying or breeding is one of the most common causes of swarming. A large hive, ten-frame Jumbo, thirteen-frame Langstroth, or a thirty-frame Long Idea or a two-story eight- or ten-frame Langstroth, when the Demaree plan is practiced, should give plenty of breeding room, with the result that swarming is almost entirely cured.



Fig. 11.—In this apiary of Zimmerman & Crowder is an equal number of ten- and twelve-frame hives; with the usual number of swarms from the ten-frame colonies, and almost no swarms from the twelve-frame.

that the hives must be made enough deeper to allow placing the screen below the removable floor-boards. When the board is removed a lath closes up the entrance that is an inch and a half deep. This scheme of providing bottom ventilation may be objected to because of expense and of making the brood-nests deeper than the supers.

But really the "unique" part of the scheme is the ventilator placed between the two stories. This, inasmuch as it can be applied to any two-story hive, is certainly good. It consists of a sort of framework about three inches deep, the sides open, and covered with wire cloth for ventilation. In extremely hot weather, or where the colonies are very strong, a top screen can be used; but ordinarily, says Mr. Crowder, the bottom screen already on the hive and made

The caution I wish to enter right here is this: There is a question whether these big brood-nests are adapted to the production of comb honey; and even for the production of extracted honey they are not suitable for all localities and for some beekeepers. There is the objection of their greater weight; and in some localities where the seasons are short a small hive will actually give more surplus, where a large hive would have that surplus turned into bees that come too late for the harvest. I most strenuously advise trying only a few hives at first. Try out your locality and yourself. The idiosyncrasies of human nature are so varied that what is all right for one man is all wrong in the same environment for another. The ten-frame Langstroth can fit either.



ANNE LESTER AND DADDY LOWE, BEEKEEPERS



By Grace Allen—Chapter VIII

"DEAR Brother Robert: I don't understand why my letters aren't reaching you. Probably you'll get them all in a bunch. But lest you shouldn't, I'll mention some things I've already told you.

"The most important is Jack Lowe's return—which you may know about. Anyway, he's here and has been for three weeks, having arrived the third of September. And now that the danger is past, I am going to admit to you that for a time we were frightfully worried over Mrs. Lowe. For weeks she was so frail it seemed as tho any unexpected wave of the hand might carry her off. And no news from Jack for so long. Then out of that long silence suddenly came word of his having been seriously gassed. Why it had been so long getting here will probably never be known. How we dreaded telling her. But tho she went even whiter than usual, she lay without a word for a few minutes, there on the sofa; then looked up at her husband with the darlinest smile you ever saw, and said: 'Our baby, Father—a wounded soldier in France!'—as tho the wonder of it lay closer to her mother heart than the sadness or the fear. Then she said it was good to get past the uncertainties, asked for an egg lemonade and proceeded to get well!

"Wires and letters came thick and fast once they started, and almost before we could comprehend the fact, Jack was here himself. Not looking like himself, tho, being a very thin, white, shaky young man, indeed, and greatly distressed over being so soon out of the running. He was to be made instructor at some camp over here, but his strength is coming back so slowly, that may be given up. Tho he still stubbornly plans to go back to France.

"Mrs. Lowe's improvement has waxed apace since his arrival. Of course he has to lie around and rest most of the time, so they are together a great deal. He is devoted to her. In fact, he seems as proud of both of his parents as they are of him, and he wants everyone else to be. I don't blame him. But he has said so often that he is glad I am fond of them both that it is almost funny. How can I help being fond of them?

"The whole neighborhood has wanted to lionize him, but he's as shy as a girl when it comes to things like that. And anyway, he isn't strong enough; so after the first few days we have been pretty much alone here, quiet and serene as always. Daddy Lowe is his old self again—with his son back apparently safe and his wife restored to something a little more substantial than the mere shadow she was. He swings around outdoors somewhat as he used to do, and promptly resumed his interest in the bees.

"'We can make a honey display at the Fair after all,' he told me after Jack had been here a few days. He had previously decided not to. We had to take what space we could get, being the last ones to apply; and then we rushed. It was all new to me. I had never even been to a State Fair before. But Daddy Lowe has exhibited many times, so he went at it like the veteran he is.

"Last week was Fair week. All the honey exhibits were against a row of windows, which certainly made the bottled honey show up fine. Our booth was decorated in red, white, and blue bunting. Everyone else had the same thing, which was as it should be.

"It was fun, just lots of fun, watching the people and listening to what they said. I was often alone in the booth, knitting and looking on and enjoying it all. They did ask the most curious questions! And I pointed out the queens in our glass-walled nucleus boxes a hundred times. And explained about foundation and how to use the extractor, and assured them the honey was pure, and altogether had a picnic. Incidentally I sold some honey, and began to feel remarkably experienced and wise.

"I must tell you one story that a storekeeper from a small country town told me. Once he bought a whole barrel of honey from a farmer beekeeper he knew, having decided to try selling it like molasses. This barrel had a spigot that turned sidewise. Well, of course in a small country town the grocery store is sort of headquarters; so one day when a man sold a prize-winning Barred Rock rooster, he arranged to deliver it to the buyer at the grocery store. At the appointed time he arrived with his rooster and waited around a bit. But the other man was late. So he finally told the storekeeper he'd just leave the bird there if he didn't mind. 'All right,' agreed the accommodating storeman, 'just tie him up, back there somewhere.' He tied him. And on that tying hangs the tale. He tied him to the spigot of the honey barrel. And the rooster flopped and flapped and plunged, in his struggle for liberty and self-government. Everyone heard him using ungently rooster language and doing his flopping and flapping stunts. But everybody was busy, buying or selling or fighting the war, so no one came back to protest against either his opinions or the unseemly vigor and violence of his conduct. Yet according to later circumstantial evidence, the very first flop, dear Brother, must have opened the spigot! The honey had not only spread thick upon the floor, but in its rush it had completely covered the rooster! He was honeyed from comb to tail and on down his restless yellow legs.

He was sticky and gooey and mussed and miserable. And at last, the deluge being still unnoticed and unstopped, he gave one last powerful lunge that successfully severed him from his moorings. With a rush he skidded down the aisle, volplaned thru the open door and tore on out down the street, squawking, squeaking, flapping, trumpeting his disgust to high heaven and trailing the sticky honey over every spot he touched! Then someone walked thru a sea of honey and turned off the spigot. 'What a mess! What a mess!' groaned my storekeeper narrator, laughing as he groaned. 'Six inches deep over the hull back o' the store. An when that man came back and grouched round bout his rooster bein all mussed up that way, rooster nothin, I ses, how about me losin a hull barrel o' honey, an it costin me a dollar a gallon?' Which proves, says Daddy Lowe, that it happened several years ago.

'We got several prizes, including third on extracted honey. There was a good deal of animated, perfectly friendly discussion among the exhibitors after the prizes were awarded, about the system of judging honey. It was the general opinion that making color the chief deciding factor was unfortunate. Yet no one seemed able to suggest any other really practicable basis. Color and body were the two qualities considered, which I understand is the custom in all judging. (They turn the bottle upside down to judge the body, or thickness, and watch the bubble rise. Quickly up, too thin, possibly 'green' and liable to ferment; slowly up, thick and heavy and rich and ripe.) We all tasted the different honeys, and it was a fact that some of the darker ones were better flavored than the very light ones. Everybody said so, including the winner of the first prize. Yet it would hardly be safe to judge by flavor, because different judges would have different tastes. Unless they had a committee. Oh, well, it's not my problem—and it's certainly not yours!

'At last Theodore has abandoned his foolish farming venture with Mr. Clark, and has his old place back in town. He brought Katherine Clark over here several times after Jack came back. You see she and Jack are old friends, neighbors always, and I have heard several times that they were expected to be more than friends some day. Theodore came along, tho, to tell me good-bye. I was sitting with Mrs. Lowe and, hoping to avoid serious topics, I wouldn't leave her. But presently he said, most seriously, 'Well, Anne, right here before Mrs. Lowe I admit I've given up. I tried hard, and I hope we'll always be friends. But I give up—and admit it.' Now wasn't that like Theodore? And so he went.

'The funny thing was Mrs. Lowe's sur-

prise. She had thought I really cared for him—that way! Later she told me she was glad I didn't. Everyone seems glad. Daddy Lowe said he certainly couldn't spare his apiary assistant, and even Jack, who of course barely met Theodore (and didn't seem to take to him much) seems pleased that he is getting his old place back. Which is nice of Jack.

'You have often said he was a fine type. And so he seems to be. How could he help it, with the parents he has? In his restricted semi-invalid way he has certainly been considerate of me, asking me often to read to him or talk to him or listen to him—trying, you see, to save me from feeling lonesome or out of things.

'One day lately he even took me into his confidence about Katherine Clark—evidently knowing I would have heard about his former attentions to her. He said the week that you and I spent here last winter was a very important one for him, being the week he decided not to ask Katherine to marry him, till after he came home. (How little we suspected, that pleasant week, what an important matter our younger host was deciding!) Well, when he told me that, I kept thinking about Katherine's frank delight in Theodore's return to city life and the fact that she is planning to spend the coming winter in town with her aunt, and I began to fear my secret hopes for Theodore might mean disaster for Jack. I hesitated to say anything—he was so pale and weak-looking—but finally I said I hoped he hadn't waited too long, and wondered if Theodore might count now. He looked at me for a minute as tho he didn't understand, then suddenly laughed, as tho it were funny, and said he hadn't the slightest fear of Theodore. Men are certainly confident creatures.

'I don't know where I'll be when I write you next. Not here, of course. The gap I came to fill has ceased to exist, now that Jack is back. And with him and Mrs. Lowe both getting stronger, I think it would be better for them to be just by themselves. I haven't said anything to them about it yet, and of course they will be all urgent hospitality. They're like that. I expect to go, tho—I'm sure that will be better. And more considerate. But don't you worry about me. Wherever I am, I shall be busy and, except when I think about this cruel war, I shall be happy. Because wherever I am, there will be beauty over the earth and something inside me singing.

'And indeed, Robert, even when I think about the war, I am seldom wholly unhappy. For I always thrill to think how nobleness and righteousness have flamed up in people's hearts and how much closer, when the world is still again and clean, it must walk with God.

Your loving sister,

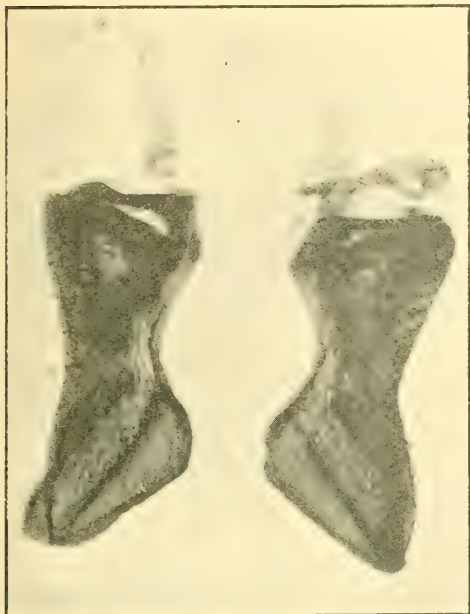
Anne.'



BEE MANDIBLES and WAX SCALES

Involuntary Secretion of Wax and Irregularity of Cell Construction

Mr. Bigelow's photos of bee mandibles and wax scales as here shown should convey to the uninitiated a clear idea of wax



The jaws or mandibles of the bees that work over the wax "scales" or "chips."

in its original form and the tools with which it is worked into that marvellous structure, honeycomb.

The comb seems even more wonderful when we watch its building—a dab of wax here, another there, pushed one way by one bee and another way by some other bee. Tho the general effect is one of apparent uniformity, it is far from uniform. The cells are not unfrequently of different sizes, from smaller than normal worker to larger than normal drone. One colony will put the side walls of cells vertically, making a V at bottom and top—the usual way; while another will have top and bottom of cells horizontal. It is idle to speculate as to the why, or why they make hexagonal cells; simply, "'tis the nature of the beast."

The picture of "scales and chips" is of particular interest, as chips are not often in evidence, the bees using them more readily than dropped scales. And by the way, wastage from dropped scales is very small, as can be shown by putting a tray

covered with wire cloth beneath a colony building comb.

It is said that bees "chew the scales and add saliva to them." Perhaps it is so; but, so far as I have been able to discover, propolis only is added and quite a lot of that.

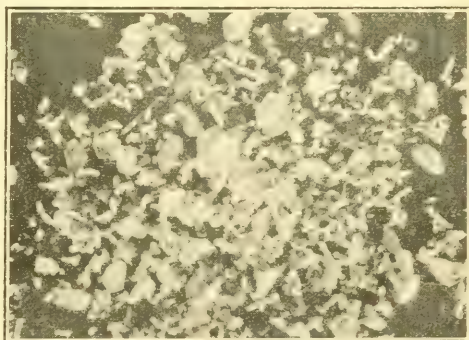
Apparently the secretion of wax is involuntary on the part of the bees, and is governed by the kind and quantity of food they have. Superabundance of nectar or sugar syrup brings the secretion of much wax even in the cool weather of fall and spring; while a similar or great quantity of ripe honey does not produce this effect, except sparingly, either in warm or cool weather.

Providence, R. I. Arthur C. Miller.

THE QUADRUPLE CASE TO-DAY

Some of Its Past History and Something About Its Present Status

The quadruple winter case has been so frequently connected with my name, some even accusing me of claiming to be the originator of this method of wintering, that I have decided to tell what I know about the case. First, however, I might say that in all my writings I have tried conscientiously to give full credit for new ideas given me in beekeeping. Still, it is true that my writings in connection with the quadruple



Flakes of wax as originally formed. Also "chips" falling from working jaws

case stimulated discussion, drew attention to that method of wintering, and gave sufficient confidence in the method of outside wintering to cause others to make and test the cases themselves. In 1879 I visited the county of Hildemand, in the province of Ontario, Canada, and found it an old and well-established practice to winter bees four colonies in a case. The strong points of the method did not at that time appeal to me. I kept bees for many years, and had sad and

FROM THE FIELD OF EXPERIENCE

glad experiences in wintering and trying to winter bees in cellars and on winter stands. Then there came across my path a beekeeper named Jacob Alpaugh, who had been using the case for eight or nine years. He gave me many good ideas, among which was that of wintering bees on their summer stands in



Mr. Wallace with his fur cape of bees. (See page 583.)

a quadruple case with forest leaves as packing. The case was made of half-inch lumber. The bottom, sides, and cover-pieces were held together with cleats made of heavier material. The cover was made water-tight by means of roofing-paper. There was only about an inch or two of packing under the hives, and six inches at the sides, and, I think, eight inches of packing over the hive.

Since first trying these cases I have seen fit to make some changes. Others have also made changes; and of these I would mention one made by a well-known and skillful beekeeper, H. Sibbald of Toronto. He makes the side of the case in two parts. The division in the sides is level with the top of the hive as it stands in the outer case. The upper portion has tacked to the bottom of it a piece of burlap, making a receptacle for all the top packing, which can be removed by one movement. This is cleanly, saves time, and preserves the packing; but, in my estimation, there are serious objections.

First, I like the case deep enough to allow ample room for a super on top of the brood-chamber. Next, in cold or cool weather the packing has to be kept off from

all four sides until an examination of the entire group has been made. Some one may tell me that that is no time to examine bees. We can not always pick our time, and this is particularly true of the large beekeeper. When the diagnosis is made quickly I have never seen any harm done.

Moreover, feeding in the winter cases can not readily be carried on, for there is no room for the feeders and I find it an advantage to feed after packing. The later one feeds, the better; for then the bees have sugar syrup for winter stores, as the last food given is the first consumed. The weather is then cool, and the packing makes it necessary for the bees to utilize less stores to produce the heat necessary for storing and ripening the syrup than would be neces-



Such stunts draw large crowds.

sary if no packing were used. And do not forget that packed colonies are rarely robbed. The ten-pound pail with perforated cover can be turned on top of the frames, and the leaves drawn about the pails or tins.

I consider it an improvement to nail to-

FROM THE FIELD OF EXPERIENCE

gether thoroly the outside case and not take it apart during the winter. The bridges forming a passage for the bees thru the packing are all collected as the hives are unpacked, and they are stored in a marked and known place. The packing of leaves is left in each case. This facilitates work in the fall of the year. Where there is no fence about the apiary these cases can be piled two or three high, to prevent the bees from flying low in a direction in which they are not desired. Leaves are not easily secured early enough to pack, but by this method they are always on hand.

In my estimation the half-inch cover is

EXHIBITS and DEMONSTRATIONS

Wide-awake Advertising at County Fairs. Police to Hold Back Crowds

Having been superintendent of the apiary department at the Southwest Washington Fair for a number of years, I meet with and talk to a great number of people in regard to bee culture, and find that most people have only a hazy idea of the subject.

I try to have my exhibit put up in the most attractive, educational way possible and each day during our fair I give demonstrations outside in a bee-cage. The stunts



Honey exhibit shown by Mr. Wallace at a county fair. In connection with these exhibits, he gives live-bee demonstrations.

not strong enough to hold up the weight of accumulated ice and snow. I would advise the use of inch or $\frac{3}{8}$ -inch board for covers. Then there is insufficient packing at the bottom of the case. According to Dr. E. F. Phillips, there should be six inches of packing under the hive, and between the hive-bottom and the bottom of the case. Now, there is no use of any one saying it is not necessary, until he can prove that the bees are not compelled to consume more stores to keep up the needed temperature when the packing is not under the hive.

R. F. Holtermann.

Brantford, Canada.

are a great help in holding the interest of the people while I talk to them and try to get them to use more up-to-date fixtures and latest methods. In the "cage picture" I have the bees gathered on me, which gives the appearance of a beautiful cape or fur. The man to my left is my helper Mr. Julian.

Most of the people seem to be very timid and afraid of a few loose bees flying outside of the cage, but while I am pulling off these cage stunts they lose all their fear. It took a policeman to hold the crowd back while I stepped outside of the cage to have the second exposure made. These stunts are both educational and interesting, and

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show what can be done with proper knowledge of handling the bees.

The picture of the honey exhibit was made at our county fair. I showed a more complete exhibit at our state fair where I took a sweepstake premium and a number of other firsts. I had also the privilege of demonstrating bees, met a number of prominent beekeepers of Yakima, and altogether spent a very pleasant week.

Do not make the mistake of thinking that beekeeping is all sunshine in this country. We have plenty of troubles of our own. More than all else we are in need of a good, competent bee inspector, and need him badly.

However, in spite of our troubles I may truthfully say that this Western Washington offers big opportunities for the live, wide-awake beekeepers. Our valleys are fine for starting early brood-rearing. Sometimes we have pussy willow in bloom in February. From this on we have plenty of pollen and some honey coming in to keep up brood-rearing. Then later on we have the berries, fruits, and hundreds of other blossoms. About June 15 to July 1, the first fireweed or bear-weed blooms, lasting from six to seven weeks. This is our main flow, and with a fair amount of rain in June, we get a nice surplus. This plant comes in our logged-off lands the second year after being burnt off and lasts from two to three years; then other weeds crowd it out unless it burns over again, when it will again spring up.

The winter problem is not a serious one with us. We winter our colonies on the summer stands. When the hives are kept dry and the bees have plenty of good ripe honey, we have but little winter loss. In this locality lumber is cheap, there are plenty of good locations without crowding other beekeepers, and a good even climate with beautiful scenery. Any time in the hottest weather when working with bees, we can look up and see the beautiful snow-clad mountains in the distance. The blue ocean is within a three hours' auto drive.

Chehalis, Wash.

J. O. Wallace.

SHIPPING BEESWAX

Double Burlap Sacks are Safer and Cheaper than Boxes

Much has already been said, both in the form of bulletins circulated by foundation manufacturers and thru the columns of the bee journals, with reference to preparing and shipping beeswax; but, as experience shows that the subject has not yet been drained of its important details, we submit herewith a few suggestions, which we trust will be of benefit to the shippers in general.

In the first place, it should be borne in mind that by **beeswax** is meant the rendered product taken from old combs, cappings, etc., exclusive of the honey, dead bees, dirt, and other refuse. It very often happens that some one sends along a shipment of old combs or cappings and expects to receive credit for the entire weight as beeswax. Such credit is quite impossible, for the beeswax must first be rendered from the cappings, combs, or whatever it may be, and credit given on the actual amount of beeswax contained therein. Of course, most manufacturers of foundation are well equipped to do the rendering for the beekeepers who do not have equipment or who do not care to do the work; but there must necessarily be compensation for such services rendered—ordinarily a certain percentage of the beeswax rendered. The manufacturers may be likened to the mining concerns that produce ore—the ore must first be refined at the smelters before the metal itself can be put to any manufacturing purpose. And it is quite impossible to manufacture foundation from old combs or cappings before these have been refined.

Experience has shown that beeswax can best be shipped in double burlap sacks (one sack within another), or in heavy nut sacks which can often be picked up at the grocery stores. Some shippers propose to "economize" by using only thin burlap sacks. This is exceedingly poor economy, for wax shipments are subjected to very rough handling while in transit. The tearing or bursting of a sack means the loss of beeswax from the shipment, which loss must be met by none other than the shipper. Just figure out the "economy" when you lose some few pounds of beeswax from your shipment. The extra sack is insurance on your property. Some persons prefer boxing their wax. Wax shipped in boxes usually gets thru all right if the boxes are strong, for it takes a strong box when filled with beeswax to withstand a jolt by some rough freight-handler. Then boxes make excess weight, for which transportation charges must be paid, anywhere from 15 to 30 pounds or over.

One very necessary point, which is overlooked by many shippers, is the use of tags for the packages. Each and every sack or box should have a tag—preferably linen, which foundation manufacturers are always glad to furnish—attached to it securely, which tag should bear the name and address of the consignee as well as the name and address of the shipper. We also urge that shippers place a card (a piece of strong paper or a side from a broken section serves well) **inside** each package, giving the name and address of the shipper, to which may be added the gross and net shipping weights. This will identify the package in case the

FROM THE FIELD OF EXPERIENCE

outer tag is torn off. In some instances, beekeepers club together to send their wax. In such cases, the outer tag should show the name and address of the shipper, while the inner tag should show the name and address of the **person to receive credit** for the wax.

With reference to shipments of old combs, cappings, or slumgum, which are often sent to foundation manufacturers for rendering, shippers are sometimes rather disappointed at the amount of beeswax secured, especially from old combs and slumgum. On the average, about 2½ pounds of beeswax is secured from ten full drawn combs where full sheets of foundation have been used. The weight of the combs does not determine the amount of wax they contain, as combs full of pollen, scales, or other waste matter con-

THE GRANULATION OF STORES

Outside Combs in Wide Hives May Become Almost Useless to the Bees

In all the discussion relative to granulation of stores, there is one important point that I do not think has been mentioned. It does not apply everywhere, but in Colorado, or at least in this part of it, it is a very vital point to be considered; and I believe that in very many other places it has an important bearing on the question. This is, that in a wide hive, such as the 10-frame, the outside combs are so far from the cluster in the winter that they are almost certain to be granulated in the spring. With the soft granulation of the eastern honeys this might not be so very detrimental, tho even with some of them there is considerable waste when the bees try to use it. But with the hard granulation of our honey it becomes a more serious question, as the bees are very loath to use such honey unless compelled to.

I have seen 10-frame hives that for several years (and I do not know how much longer) had been really only eight-frame or even seven-frame hives as far as brood capacity was concerned. The outer frames were filled solid with hard candied honey and were not used by the bees for any purpose whatever. Next to them were the combs used mostly for storing pollen, and inside of them the five or six frames of brood. The outer frames might just as well have been solid boards, except that they had perhaps some value as a reserve that might be drawn on in an emergency. For the most part tho, they were very dead capital. Doubtless you will say that more prolific queens would have compelled the bees to utilize these combs. I do not know. They were not mine and I had no chance to experiment.

I am only telling you of things as I have found them. Another matter of frequent observation was that bees in 10-frame hives did not winter as well nor build up as quickly, on the average, as in eight-frame hives. I do not know just why this should be so. It certainly was not true of my sectional hives, which are of about the capacity of 10-frame hives, tho of only eight-frame width. In these also, there was no more trouble from the granulation of the side combs than in the regular eight-frame hive, the obvious reason for this being that in the taller hive the stores were above the bees instead of being off at the sides.

I believe that in many cases it will be more profitable for the experienced beekeeper to use a larger hive than the eight-frame Langstroth; but when you attempt to justify the present movement toward wider hives on the theory that they are safer for the careless or the inexperienced, I cannot help wondering how often this is true.

Grand Junction, Colo. J. A. Green.



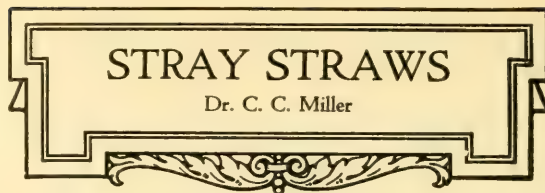
An ad worth while.

tain no more wax than the same number of light, dry combs. Neither is the weight of slumgum a basis for figuring the amount of beeswax it contains. It is impossible to give any rule for estimating the amount of wax that may be secured from a lot of slumgum. The difference in equipment, together with the experience and time given to the rendering of old combs by the beekeeper, is responsible for the wide variations in the amount of wax secured. Cappings also vary greatly in the amount of wax they contain; when well drained they will turn out a greater percentage of beeswax than when heavy with honey. Cappings should be well drained or washed in warm water and dried before shipping in order to obtain the most satisfactory results. Whenever possible, old combs, cappings, or slumgum should be shipped during the cold weather as they can be handled then more easily than during the warmer weather. Such shipments of old combs, cappings, or slumgum may be marked and shipped as "Beeswax Refuse," which takes a lower freight rate than beeswax.

Superior Honey Company.

Ogden, Utah.

WHEN the honey flow stops I think it is the custom of queen-rearers to continue their work by feeding sugar syrup. I wonder if it would not be money in their pockets to feed honey. I should expect more queens to be matured, and of a little better quality.



* * *

T. W. Riggs, page 510, August Gleanings, springs something new. He says: "Every one knows that in a yard of Italians there are nearly always a few bees in front of each hive trying to get in and steal and occasionally doing so. This keeps the colony always upset and nervous." So much does this hinder the colony in gathering that he has noticed that colonies hid in weeds where the robbers cannot find them average at least 20 to 25 per cent better than the rest of the yard. That's exceedingly important, if true in other localities. But I'm pretty sure it wouldn't work in my locality. When a good flow is on, not a robber will be found in front of any good colony. Moreover, in a time of scarcity I'd trust my bees to find a colony ever so well hidden, if it was in robbable condition.

* * *

"Shade is convenient, but not essential," page 518. I should hardly want to accept that statement without qualifications. There may be places where the bees are better off without shade. In this locality — and I rather think in most localities—I should say it is generally important, and sometimes essential. Remember that the beekeeper as well as the bees is to be considered, and in the hottest days is not shade absolutely essential to the comfort of the beekeeper? When a newly hived swarm deserts its hive, in nine cases out of ten it is because the bees are too warm. To avoid this desertion, ventilation and shade are very important, if not absolutely essential.

* * *

J. L. Byer, page 520, you seem troubled to take such big prices for honey, and say: "The only way I see to square up is to take the money and then shell out some of the proceeds to needy institutions." I sympathize with you in your feelings, but don't you think we can stand high prices for a while until we average up some of the times when we got less than living prices for our honey?

* * *

Years ago I think it was the belief that two laying queens were never to be found in the same hive. Then came reports here and there of two queens, mother and daughter, laying side by side for a time, and finally it was not considered a very remarkable thing, altho still exceptional. I think

that has been the belief for a number of years; but now comes C. W. Phelps, page 523, and says it is the usual thing, when a queen is superseded, for

her to remain in the hive with her superseding daughter for a week or two after the daughter begins to lay. I wonder if that can really be the case. Please remember that when bees are left to their own devices, **every** queen is superseded before she dies. If each queen lives to be two or three years old, then that means that in a third or half the hives in a yard there will be for a week or two each season two laying queens. No, not so much as that, for he doesn't say "always" but "usually." Even at that it seems we should find the two queens much oftener than we do if Mr. Phelps is correct.

* * *

Prof. John H. Lovell, you say, page 522, "It is largely my practice to wear a white veil, altho such a veil is more difficult to see thru." As a personal favor to me, I wish you would give up that practice. A man with the knowledge of posies you have is too valuable to go blind, and I knew one of the veterans to go nearly blind years ago from wearing a white veil. Of course, the white veil is all right if it has a black facepiece.

* * *

"While California is beautiful and the climate delightful, good old Ohio with its beautiful green shade trees and green fields was never more appreciated than now." Thus ye editor, page 489. I wouldn't swap Illinois for Ohio; and the Californian wouldn't swap with either of us. "East, West, home's best." It's well that it is so. The beekeeper seeking a new location will find nine times out of ten that the very best place in the world for him is right where he is. A fairly large per cent of those who have been at no small expense to move a long distance to a new field, after a year or more have repeated the expense to get back to the old home. But it may be worth all it costs to have them then contented. Blessed are they who are contented right where they are.

* * *

Yes, I "take notice," Mr. Editor, of those skyscraper piles, especially Fig. 4, page 493. Now it's up to you to convince Mr. Warren he should adopt those big hives you have been exploiting, so there will be no danger of his piles being knocked over by aeroplanes.

* * *

R. F. Holtermann, you say, page 506, "If I could devise a method by means of which I could, at the close of the honey flow, get rid of all the old bees, and even the half-worn-out ones, I would do so." Well, it would be an easy thing to do as you suggest.

Just move the whole apiary a few rods, leave at the old location a hive in which the old bees might assemble, and then wreak your vengeance on them. Surely you must be old enough to remember the ado that was made about a man who did the very thing you talk about. But I think he has left no imitators.

J. P. Brumfield thinks that when a man is deciding whether to make beekeeping the business of his life, remuneration should be entirely a matter of secondary consideration; and with this he couples the thought that length of life is one of the things to be seriously considered. Some one might reply, "You're off, Mr. Brumfield; if I have my choice between a business at which I can lay by \$500.00 a year and another at which I can lay by \$1,000.00, I'll take the latter every time. Business is run to make money, and the money that's in it is the only thing to be considered." I like better the Brumfield view. Money is only of value for the happiness it brings, either to its possessor or to some one else. So the man or the woman with a real love for bees has more enjoyment every day as he goes along than he would with twice as much money and no bees. Not only is his life happier, it is longer; and Mr. Brumfield thinks that stands to his credit, for it shows he has been leading the right kind of a life.

A. E. Lusher, who hauls a large number of colonies every year, and never loses a colony, says, page 524, "I never sprinkle the bees with water, for every one I gave the least bit to always smothered." On page 509 E. F. Townsend says, "For the bees we carried a barrel of water which we sprinkled on the tops of the screens. Another time we would find it convenient to have with us a hand spray-pump to water the bees more effectively." This latter should bring disaster according to Mr. Lusher, and it is very important that we should know which is right. The use of water when shipping bees has been so common, and it is so unqualifiedly recommended in the A B C and X Y Z, that one wonders whether there may not be some mistake about the least bit of water always smothering Mr. Lusher's bees. Just possibly it might be something like this: He never gave water except in a few cases where there was danger of smothering; then he gave the least bit and the bees smothered because he gave only the least bit and didn't give enough.

On page 530, Geo. P. Smith asks about putting hives close together, perhaps wanting to use as little ground as will answer, and you tell him, Miss Fowls, "In our apiaries we like the hives at least six feet apart, and doubtless a little further would be better." That's all very well as far as it goes, but why in the world didn't you tell him that by putting his hives in pairs he could double the number on the same

ground without increasing the danger of bees getting into the wrong hives? Was it because hives in pairs is a hobby of mine, and you didn't mention it because of spite against me? Anyway, I'll tell you how it is. If the hives are in pairs in a row, and No. 13 and No. 14 are the hives in one of the pairs, you cannot put those two hives too close together except for the danger that jarring one of them may jar the other. The bees of No. 13 will not go into No. 14; if they go into a wrong hive it will be more likely into No. 11 or No. 15, for to them No. 11 or No. 15 has more the look of their own hive than does No. 14. They know that their hive is the right-hand one of a pair, and they'll not enter a left-hand hive. So putting in pairs will allow just double as many on the same ground. [Not exactly "spite," Dr. Miller, but I do kind of like to scrap a little, especially with you. This time, however, I'll have to admit we have

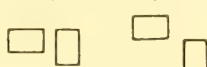


Fig. 1.



Fig. 2.

found grouping in pairs quite satisfactory. Grouping in Fig. 1 looks better and takes up a little less room than in Fig. 2, but the latter is more convenient if two people are working together at the same hive.—Editor.]

"Bees naturally store honey above, and therefore, during a honey flow, they would be likely to crowd the queen out of the upper story into the lower one and fill the upper one with honey," page 531. Yes, my observation has been that bees naturally build down, keeping their brood below and their honey above. The brood perhaps gets better air below, and the honey above is safer against robbers. Once, and I think only once, I knew them to break the rule. To keep them safe from moths I filled the lower story with empty combs, having the brood-nest in the second story. A heavy flow came on, and those bees promptly filled the lower story with honey, continuing the brood-chamber in the second story. Which only goes to show again that "Bees do nothing invariably."

Did you ever notice when bees are working on a basswood or other honey-tree, if there is the least breeze stirring there will be few or no bees outside the compass of the tree on the windward side? On the leeward side there will be plenty, no doubt attracted by the scent which the breeze blows in that direction. Making practical use of this observation, always have the door of your bee-tent on the windward side, and if your honey-house has different openings, keep open the one on the windward side.

Now it's migratory queen-rearing. J. E. Wing of San Jose, Cal., is at it, as reported in the American Bee Journal. When the flow stops, instead of feeding sugar-syrup he packs up his queen-rearing outfit and treks 75 miles to a place where a flow is on.

THE season for 1919 has been rather disappointing. In the spring most colonies were unusually strong. There has been a good bloom of clover; but we had a great many rainy days, followed by a low temperature, with the result that only a fair or average crop has been gathered.

* * *

We are trying to clean our sections of propolis this year as fast as removed from the hive—not an easy task, but it has some advantages. We can sort out those that have open cells of pollen, which are liable to develop worms, and can treat them to carbon bisulphide or sell them to the neighbors that drop in for a comb. Then we can sort out any unfinished combs and return these to be finished, if it is not too late in the season; but it is usually a sticky job if the weather is hot. It requires a sharp knife of extra-good temper. Sometimes we have had a dish of water to dip the knife into as we use it. This year we have used machine oil and found it a wonderful help. Set a shallow dish of oil near you, and, as you start on a new super, dip the tip of your finger in the oil and rub it on both sides of the knife blade, and you will be surprised at the ease and rapidity with which you can scrape off the propolis. The oil will keep not only the knife blade largely free of propolis but also the handle and your hands too.

* * *

That item quoted from the Western Honey Bee, page 529, advising to place an empty body below frames of foundation in order to prevent new swarms from absconding, cannot be too highly commended. Had I known it years ago, it would have saved me many a swarm. It is all right.

* * *

Dr. Miller, page 512, thinks Belva M. De-muth's plan of placing extracting-combs on colonies of bees to be cleaned up would be all right if she could only "secure the hearty co-operation of the bees." Well, Doctor, to get the bees to do it right used to be my trouble; but if you will first place an empty brood-chamber over the colony and then pile the wet combs over this, you will doubtless "secure the hearty co-operation of the bees."

When I opened again the hive having the aluminum comb, I found it well stocked with brood. It was put in so solid it looked pretty good, and, in my enthusiasm, I felt like throwing my hat 20 feet high and shouting—but I didn't, for I am a quiet man. When I looked again I confess I was a little disappointed, for the brood did not seem nearly so compact. There were many

SIFTINGS

J. E. Crane

cells where the brood apparently had been removed. Fully one-fourth of the cells, I should estimate, in the space occupied by brood were empty. Nearly

all the cells of the two rows on each side of the upright wires that hold the comb in the frame had failed to mature any brood. I have examined it again today and find brood in all stages, and considerable capped brood maturing, but somewhat scattering — quite too much so. One comb in one hive is not enough for a very thoro test of the value of these combs; but it is highly interesting to watch developments.

* * *

For one I am grateful to Dr. Miller for his statement that he has strengthened weak colonies hundreds of times by giving a comb of brood with adhering bees. I have done so many times, but have always been afraid it might work harm. Another way I have found useful is to shake a lot of bees without queen into an empty box and confine them for five or six hours with honey enough so they would not be in danger of starving, and then at or near night run them in where wanted. They are so pleased to find a home with a queen that they forget their old home and adopt the new one as their own.

* * *

Every one seems interested in the price honey will bring this year. It appears evident that the crop will not be large—doubtless below the average. There will be a disposition on the part of some to push up the price. This seems to me to be unwise, as last year's prices were all or more than the market would bear. Many years ago there was a short crop, and the advice to bee-keepers was to hold on to their honey and that thus the price would go up. Well, it did go up; but when the price reached a high figure the demand dropped off, and a large amount of comb honey was carried over unsold until the next year.

* * *

I was much interested in the article by Jay Smith, page 498, August Gleanings, on safe introduction of queens. If, as Mr. Smith says, it is a sure way, it may well be used in place of some of the quicker and more modern methods. I tried this method more than 40 years ago, using heavy wire-screen cloth for the cage, raveling the wire from the edges so the cage could be readily pushed down into the comb. The difficulty, however, of getting the wire screen of the right size or strength led me to discard this method of introducing. Does Mr. Smith make the saw-tooth tin by hand or can it be bought in quantity? [At present it is not made in any quantity, but there is no reason why a die could not be made.—Ed.]

POSSIBLY some of my beekeeping friends feel that Our Food Page has not been fulfilling its mission because of late it has given so few recipes calling for honey, and when honey is one of the ingredients in a recipe only a small amount is called for and the balance of the sweetening is sugar. Sometimes too in publishing a honey recipe I have mentioned an alternative sweet. Don't imagine for a minute that I am losing interest in promoting the use of honey as a food, but it seems absurd to advocate the use of much honey in cookery at the present prices. And I might as well confess that secretly I have always had about honey a little of the feeling that a certain man I know expresses about apples. He says, "Why spoil a good apple by putting it in a pie?" I have no objection to the use of honey which is off color or flavor for baking, just as we cook imperfect or spotted apples, but when the price of even second- or third-grade honey keeps it in the luxury class I do not believe much is gained by pushing the use of honey in cookery.

It is rumored that even the large baking companies, that formerly used immense quantities of inferior grades of honey, are substituting invert sugar. Incidentally I hope Uncle Sam will see to it that cakes and jumbles sweetened with invert sugar are not called honey cakes or jumbles, for we beekeepers know that baked goods sweetened with honey substitutes do not have the moisture-retaining properties that are peculiar to honey products.

Here is a question which is often heard: "Is honey likely to lose its popularity because of the high prices?" Time alone will tell, but I believe if we educate the public to regard it as a fine confection of nature instead of little better than a cooking syrup we need have no fear. In the past few years I have often been amazed at the way most of my friends spend a couple of dollars on a box of candy. Now I will leave it to anyone of artistic tastes to say whether a choice section of honey is not as beautiful and fragrant as a flower, and vastly more so than a box of chocolates made by man. We must never lose sight of the fact that nature, set at work by the Creator, has never been equaled by man.

It is interesting and amusing to read of the number of things which are supposed to be substitutes for the drink habit. We are assured that the moving pictures provide a diversion for the man who is accustomed to spend an hour in the neighborhood saloon; coffee houses, tea houses, and recreation centers are proposed; we are told that the sale of candy will be enormously increased now that the country has gone dry. I have no

OUR FOOD PAGE

Stancy Puerden

doubt that there is truth in all these prophecies and that in addition nearly all other legitimate business will show a decided increase. And here is where

Mr. Beekeeper should get busy; for if sugar and candy help to allay the craving for beer, or something stronger, honey will do the work still better. There, I shall not call honey a beer substitute, but if beer drinkers could have honey every day I believe the craving for beer would be much less, provided of course that the rest of the ration was well balanced. At this point someone may catch me by saying that a man fed a well-balanced ration is not going to crave beer anyway. I am willing to concede that the drink habit is not likely to be formed if the man has always been fed a balanced ration; but after the pernicious habit has been acquired his system craves something which yields energy quickly, and what could be better than honey, which, in addition to being a quick source of energy, is rich in soluble minerals and has not been deprived of its vitamins by so-called refining processes?

Lest you think me over-enthusiastic, let me tell you that for years back it has been recognized that the steel workers in and around Pittsburg have been great users of honey. They have used it to such an extent that Pittsburg is known as one of the best honey markets in the country. A man who is in a position to know informs me that the managers of the steel corporations have done all possible to encourage the generous use of honey among their employes, believing that it lessened the craving for strong drinks. And this was long before country-wide prohibition was regarded as anything but a remote possibility.

Honey as a Breakfast Food.

As honey in the Puerden household is regarded as indispensable to the ideal breakfast, as much a breakfast food as grapefruit, cereals, toast, or bacon and eggs, I have been glad to see how many other people are beginning to agree with us. In the first place, you may have noticed how often dietitians include honey in their breakfast menus. In a daily paper of a near-by city, which has been conducting a menu contest for some years back, about half the breakfast menus include honey. And prominent food advertisers are wont to advise the use of honey with their particular product, especially if the food they are advertising is known as a breakfast food. Even a small amount of honey for breakfast helps to overcome that disagreeable feeling of faintness and exhaustion with which so many are afflicted in the latter part of the morning. Such people are apt to have little appetite early in the morning and are therefore not apt to

cat enough. Honey not only tempts them to eat a little more but is a source of energy.

Honey and Peanut Butter.

P. J. Pentecost of Tipton, Ind., writes that his family consider a mixture of honey and peanut butter an excellent spread for sandwiches. He says that it is a good way to use an inferior colored honey, that children like it, and that in warm weather it stays where it belongs. That is all true, and some years ago a firm doing a large honey-bottling business considered putting the mixture upon the market, but as peanut butter is liable to turn rancid in time it was thought best not to feature it commercially. However, it could be mixed and kept in the home icebox for some time without deterioration. Notice that I embody Mr. Pentecost's idea in a sandwich recipe. Such a sandwich is rich in body-building and energy foods and therefore ideal for children.

Corn Syrup Jelly Not a Success.

Last year, during the sugar shortage, a number of my friends made jelly with corn syrup. While it was not sweet as sugar jelly it had a good texture, was transparent, and stood up well. Those who made only a small amount and used it within a short time had no complaints to make, but several who attempted to keep it over winter reported that the jelly worked.

Honey in Medicine.

A honey demonstrator, who had worked in cities scattered over the country from New England to Missouri, tells me that I would be surprised to know the number of people who purchase honey to use in medicine. Personally I have little faith in medicine. Fresh air, sunshine, good food, exercise, and hygienic living generally should keep us well; but for the people who delight to dose themselves, honey is not only harmless but a good food. We all know it to be a good cough remedy, but in my experience with croupy children it has seemed to do as much good alone as when combined with some nauseous drug.

A year ago a Chautauqua lecturer in our town had a cold accompanied with an annoying hoarseness. He was an extremely rapid speaker, and by the time the lecture was over he had scarcely any voice left. A honey enthusiast took him in charge, procured a bottle of honey, and prescribed it in repeated doses. The next morning the lecturer said he was much better and hoped to go on with the tour.

SAUCE FOR SWISS CHARD OR OTHER GREENS.

2 tablespoons fresh	1 teaspoon salt
bacon fat	$\frac{1}{8}$ teaspoon pepper
1 tablespoon flour	2 teaspoons sugar
$\frac{1}{2}$ cup creamy milk	1 egg or
3 or 4 tablespoons vine	1 or 2 hard-boiled eggs

gar
Make a white sauce of the bacon fat, flour, and milk; add seasonings and 3 tablespoons or more vinegar, to suit taste; and beat the egg after removing from the fire.

Left-over hard-boiled eggs may be substituted for the raw egg. They should be chopped fine, and bits of bacon cut fine and added are an improvement. Serve hot poured over the greens; or, if preferred, pass in a sauce boat.

PEACH COBBLER.

1 qt. sliced peaches	3 teaspoons baking powder
1 cup sugar	
1 cup water	3 tablespoons shortening
$1\frac{1}{2}$ cups flour	1 teaspoon salt
	Milk

Put the peaches, sugar, and water in a saucepan with a well-fitting cover and simmer about 10 minutes. Make a biscuit dough of the other ingredients, roll out, cut with a small biscuit cutter, and place closely together over the hot fruit; cover and cook 15 minutes without lifting the cover. Serve with the hot fruit dipped over the dumplings and pass cream or butter with it. Canned peaches may be used. Less sugar may be used and honey may be served with it on the table.

COTTAGE CHEESE AND MARMALADE SANDWICHES.

Cottage cheese.	Whole wheat bread
Orange marmalade	Butter

Cut the bread thin, keep the slices in pairs and open like a book to spread them. Spread one slice with butter and then marmalade, spread the other with cottage cheese, put together, and cut in triangles.

OLIVE SANDWICHES.

1 small bottle stuffed olives	Bread
	Butter

$\frac{1}{2}$ cup salad dressing either boiled or mayonnaise

Chop the olives which should be the variety stuffed with pimentoes and mix with the dressing. Prepare the bread as in the preceding recipe, spread one slice with butter and the other with the olive mixture, and put together.

HONEY AND PEANUT BUTTER SANDWICHES.

Honey	Whole wheat bread
Peanut butter	Butter

Mix any well-flavored honey with peanut butter, equal parts, blending them smoothly, spread one slice of bread with the mixture and the other with butter, press together, and cut in any shapes desired.

GREEN TOMATO MINCEMEAT.

3 qts. chopped apples	$\frac{1}{2}$ teaspoon cloves
3 qts. chopped tomatoes	1 cup tart jelly
1 box seeded raisins	Grated rind and juice of one orange.
1 box seedless raisins	Grated rind and juice of one lemon
6 cups sugar	$\frac{1}{4}$ lb. citron.
3 tablespoons salt	1 cup chopped suet, if desired.
1 cup vinegar	
2 oz. stick cinnamon	

Cover the chopped tomatoes with water, bring to a boil and drain; repeat twice. Add the other ingredients, simmer gently for half an hour, and can in sterilized jars. If the suet is not used, add 1 teaspoon butter to each pie when baking it. Instead of sugar, part honey may be used and boiled cider may be substituted for the jelly.

I AM so glad to realize a new from page 514, August Gleanings, that there are still a few people left who like to drive around a countryside with a horse and carriage. And don't mind saying so. There are others who do it occasionally, Mr. Crane, leaving the popular pikes for quiet country roads, and turning down shady lanes that lead they don't know where. And don't much care. Sometimes they may be looking for a new location for bees, and watching for clover and locust and aster; but they don't really need an excuse.

There are even those—I know at least two of them—who sometimes take along a box of sandwiches and apple tarts; and when the sun,

"Closing his benediction,

Sinks, and the darkening air

Thrills with a sense of the triumphant night"—

then in the new refreshing coolness, off on some quiet side road, they open the box, finally shaking out the last crumbs into the concealing dusk. The queer thing is, they don't mind at all, but like it perhaps the more, that it is all so very leisurely and old-fashioned. By contrast it reminds me of the speed demon whom the small boy described by the assertion, "It takes three folks to see that fellah. One says 'Here he comes!', one says 'Here he is!' and another says 'Yonder he goes!' An they gotta all three talk at once!"

That was surely neither a sideline nor a wise man of any kind. "There was always more in the world than men could see, walked they ever so slowly; they will see it no better for going fast. * * * It does a man no harm to go slow: for his glory is not at all in going, but in being."

* * *

"I take it for granted that a beekeeper generally extracts what honey there is above the queen-excluder. No other system is very practical."—Thus Mr. Holtermann, page 505. That is not, I think, the practice in this section. Most beekeepers here find their brood-chambers at that time, as Mr. Holtermann says his also are, very short of stores, in fact often with practically none—having them nearly filled with brood. So we leave considerable of the honey above the excluder—that is, when the brood-chamber consists of a single standard body. I think I have heard Mr. Buchanan say he doesn't touch the body just over the brood-chamber, which, under his system is one body only at the end of the flow, the other one having been raised, usually over an empty super, at the opening of the flow. With such a generous supply left them, the bees are safe, even with only a slight fall flow. If there should be a big fall flow, there can be an-

Beekkeeping as a Side Line

Grace Allen

other extracting. Where the brood-chamber is made up of a story and a half, and kept at that size thru a honey flow, as many of ours were this summer, we are

almost surely safe in removing all above the excluder; for the little body is apt to be solid honey.

We ourselves have sometimes taken all the honey above the excluder of a single brood-chamber, I admit; but it has been in the acknowledged spirit of the sideline, who, having only a small yard, can watch each colony individually for stores. Our main flow, clover, fades away from mid-June to July 1, when it is practically at an end. During July, we have usually in this immediate neighborhood that "teasing" sort of flow referred to once by Mrs. Demuth as doing often more harm than good, wearing out the bees more than it benefits them and faster than the slackened brood-rearing can replace them. Bitterweed doubtless leads among these minor nectar-bearers of this period, with a little smartweed a little later, and then a real dearth. However, this bitterweed grows, fortunately, in a narrow area, following a path scarcely a mile wide along the railroad. It runs along the track as far as Memphis.

* * *

Last month we met the nice friendly wife of a pleasant ex-sideline, and she spoke to us about as follows: "No, I assuredly do not like bees. I like to see them flying around and I'm willing to share my flowers with them, but I don't want anything to do with them. A few years ago I tried to take care of the bees while Mr. Sideline was gone. The bees would crawl all over him and not sting him, so I was willing to try it too.

"They swarmed a good deal, but I managed to handle the swarms somehow—we had a smoker and such things, and I could put the hives down and get the bees into them without much trouble. But after a while it came time to rob them. Well, I understood I ought to do it towards night, so I started late in the day and began to brush the bees off the honey. Before I got thru it was quite dark, and had begun to rain, and the ground was covered all over with bees, thick, crawling all around. And what they did to me! I was literally covered with stings, all over, and it put me to bed for several days. No, I don't want anything more to do with bees. One good thing, tho—you know there's a good side to everything—I had had rheumatism badly up to that time, and tho that was several years ago, I've never had a bit of rheumatism since."

Note to Beginners: Don't try to take your honey by the brush-off-the-bees-in-the

dark-and-the-rain method. Unless you have rheumatism.

* * *

Another story this same lady told us was about a successful young farmer beekeeper of a near-by county who had gone his brave way to France. It probably wouldn't have happened if he had been at home. One day in late summer someone discovered that about half a barrel of honey had started to ferment. They decided it was of no use, fermented. They would feed it to the bees. Thereupon they tipped up the barrel and poured the honey out upon the ground. The bees did the rest.

But their mother was away from home that day, and as she came driving into the place on her return, in her phaeton, behind her own special pet horse, the boys started walking out to meet her. Then they discovered an alarming excitement among the bees. It was as tho every hive had emptied itself of every bee of flying age, and they were all out for spoils—the same spoils. Three feet deep they fought over that honey. And they were wild—mad—utterly beside themselves. The boys made a wild dash to meet their unsuspecting mother, almost pulled her from the phaeton and fairly carried her into the house. Then they ran back to the horse. But the bees had got there first. In 15 minutes the horse was dead.

Note to Beginners: Don't feed honey by the half barrelful, in the open, during a dearth of nectar. Or at any other time. Unless you have too many horses. But remember you have only one mother.

* * *

Among the many myths about bees, current among even intelligent people, one that needs exploding is the idea that bees never sting certain people. These particularly favored ones would seem to lead charmed lives, or carry about them some unconscious spell or magic that renders all bees friendly. The opposite side of the myth of course shows the bees with a bitter antipathy for certain other unfortunate ones who cannot step anywhere near a hive without getting stung, promptly. And, according to the telling, it always makes a much worse swelling and is far more serious than the stings that other people get.

Of course, every real beekeeper knows that the big simple fact of the matter is that the attitude of the bee to the person is largely determined by the person's attitude towards the bee. Fear, with a nervous striking at the first bee that comes humming one's way, brings its own quite inevitable result—a resentful bee and a sting. While fearlessness and composure, a steady quiet bearing and gentle movements leave the bees unruffled and the person unstung. Mr. Gill, "one of the six best beekeepers in the United States," the man who knows his Maeterlinck as well as his markets, says of bees (page 508) that "what they hate most is nervous, jerky, excitable, swearing

people." (Note that last quality!) And he also says of Mrs. Gill and himself, "We work together so calmly that the bees take us right into the family and never sting us." I suspect he meant practically never sting; "never," unmodified, is such a big word. But he has touched the keynote and said a thing that all who are beginning with bees should remember.

* * *

One morning while Mr. Allen was riding in a street car to the office, the man next to him started a conversation, regardless of Mr. Allen's open paper. The talk ran along in a rather one-sided manner, till the stranger pointed to a house they were passing. "See that house?" he queried. Mr. Allen saw it.

"The fellah that lives there's the meanest man I ever knew," he asserted.

"So?" from Mr. Allen, as he turned again to his paper, indifferent to the gossip. "Yeah," from the other, indifferent to the paper; "he used to have some bees."

Mr. Allen folded his paper. "He did?" much interested.

"Yeah. He had bees an a friend o' mine had kidney trouble. He'd done tried everything everybody'd told him about, and then somebody told him bout bee tea. So he ast this fellah to give him some bees for the tea, and he wouldn't do it."

Mr. Allen waited—I suppose with bated breath. But the man had reached the climax of his tale, the meanness of the man who lived in the house. Mr. Allen had to fish to get the rest.

"Couldn't your friend get the bees anywhere else?" he finally prompted.

"Yeah. He knew a fellah out in the country an he give him all he wanted."

"Er—how did he make the—the bee tea?"

"Boiled em up and drunk it."

"I see. And—did it cure him?"

"Naw. Made him better for a while but he got bad again. Finally died. I reckon he'd ougha took it reglar."

"Probably so," Mr. Allen murmured as he left the car at his regular stop.

Note to Beginners: Don't start taking bee tea for medicinal purposes, unless you're willing to take it "reglar." And it might be habit-forming.

* * *

SONNET.

TO THOSE TO COME.

Ah, You to Come! You will not know at all

That I have lived, and thrilled, and deeply stirred,

And felt my spirit like a awakened bird

Strike, singing, out—yet here I send my call

To You Who Come! Down life's resounding hall,

Strung with old dreams, I drop my singing word:

And tho it reach you, mine no more, but blurred,
And lost in deeper chords—ah, may it fall

Within the vibrant heart of some brave youth,

And turn him from some roaring city's crowd

To where young beauty walks with ancient truth,

To where the seed is sowed and fields are plowed,

To where God walks in gardens while the bees.

Drift round and hum—to all such things as these.



FROM NORTH, EAST, WEST AND SOUTH



In Ontario.—Continued drouth in many parts of Ontario has cut down prospects of a good buckwheat crop in most places. In our own locality the acreage is larger than usual, but many fields of buckwheat are just nicely up out of the ground, and at best the bloom will be late. Here in Ontario we rarely get much buckwheat honey after the first of September.

The Honey Crop Committee for Ontario, appointed by the Ontario Beekeepers' Association each year, recently met in Toronto and have issued a report for the season. Prices advised are practically the same as for last year, and, judging by the prices of all other articles and the short crop in the Province, there should be little doubt but that these prices will be maintained. Full reports received point out to a reversal of last year's conditions so far as the crop is concerned. Last year the western counties gave a large yield; central Ontario, half a crop; and eastern Ontario, a very light crop. This year the western counties, where most of the producers in the Province reside, have a very light crop—many localities have a total failure. Central Ontario has a medium to light crop, and eastern Ontario has a good crop. Fear is expressed in the western counties that in some localities the clover is all killed for next year. This drouth is quite acute, and includes the districts where most of our bees happen to be situated.

Probably sweet clover has produced more honey in Ontario this year than ever before—largely because there is more grown than ever before, and again it seems as tho the hot dry weather suits this plant so far as honey production is concerned. Personally, as many know, I have never been enthusiastic about sweet clover as a honey plant, but that factor shall not keep me from telling the facts about the matter as proved in our own locality this season. Sweet clover, even by its boosters, has generally been classed as a slow yielder of very thin nectar; yet I positively know of an apiary near us that during the last week in July actually stored an average of 40 pounds per colony in four days, tho there was nothing but sweet clover for them to work on and the weather hot and dry—nothing very slow about that. One of our apiaries near home, that had no sweet clover in reach to amount to anything, stored an average of about 30 pounds per colony. Another apiary eight miles away and in reach of sweet-clover fields (some of which were let go to seed without being pastured off early in the season, while other fields were pastured and thus prolonged the blooming period) yielded an average of 125 pounds per colony. As to quality, certainly it does not equal alsike or white-clover honey, but it tastes and looks mighty good when the other clovers fail to yield.

With the crop so variable in different parts of Ontario this year, some arrange-

ment, whereby more equal distribution could be made of the product, would prove very **beneficial in marketing the crop.** I have received requests for honey from some of the best producing parts of the province which this year happen to have failures; and just yesterday I noticed an ad in one of our farm journals from a subscriber in one of the best clover counties in western Ontario asking where 40 or 50 pounds of good clover honey could be secured for private use. In many localities people will probably be unable to get honey, while in other places there may be abundance with not enough purchasers. Of course, there is always the wholesaler as a distributor, yet he does not take the place of home trade exactly; and the more honey sold locally, the better for all concerned.

By the time this is in print, fall feeding will be the question of the hour. Present indications are that sugar will be hard to get again, and of course it will be high in price. Many who wintered largely on buckwheat stores last year will be more anxious than ever to get sugar; for in many cases the natural stores gave very poor results last season; while universal good wintering was the rule where sugar syrup was given for the coldest part of the winter. At present there is no ruling against getting sugar; but judging by the present outlook, there is going to be difficulty in obtaining what is needed.

The writer of these notes had the pleasure a few days ago of once more meeting our old friend, Prof. F. E. Millen now in charge of the apiary work for the Province, and who is of course stationed at the Guelph agricultural college. While we were very sorry to lose the genial Dr. Gates, we nevertheless welcome Prof. Millen, who is an old O. A. C. boy, and well known to many of the fraternity. Prof. Millen is secretary-treasurer of the Ontario Beekeepers' Association, and all association correspondence should be addressed to him at the College, Guelph, Ont.

Markham, Ont.

J. L. Byer.

* * *

In Northern California.—Our section must continue to report unfavorable conditions. In the southern and central parts the conditions are decidedly unfavorable; but in the northern, it may be said, they appear much more promising. July was an unusually cool month and crops of all kinds suffered owing to poor growing conditions. Alfalfa has been a keen disappointment, and beemen in almost all sections are reporting from a one-third to one-half a crop from this source. Of course, unfavorable weather and insect pests were the causes of the small crop. About Newman approximately 2,000 acres of alfalfa were lost owing to grasshopper depredations. Those beekeepers that get their crop during June and July are the



FROM NORTH, EAST, WEST AND SOUTH



heaviest sufferers. The cool weather during these two months has in most instances helped the fall honey plants; and at this writing there are many of us that believe such plants as alkali weed, jackass clover (alkali mustard), yellow sticker, tarweed, thistles, and blue curls have been considerably benefited by the cool weather. If proper climatic conditions prevail during August and September, we should get a fair flow in most regions. A light honeydew flow has commenced along the San Joaquin River. Taking it all in all, the season to date has been freakish. For short periods the bees would work well on certain flora and then desert it, altho in full bloom, and work upon something else. The yield from button willow and melons was practically a failure, and to date hardly any bees have visited sunflowers. Several yards in the eastern part of Stanislaus County have actually not made a pound of surplus up to the beginning of August. Ordinarily we have very little European foul brood during July; but this season, owing to the abnormal weather, there was as much diseased brood as we had in June. It does not now appear that our section will get more than half a crop and we are hoping for a general stiffening in the price of honey.

In an off year such as this, so-called minor considerations may easily receive attention. First of all, why not weed out all poor stock? and next, why not take as much pride in every one of the combs in your hives as you do in those young vigorous queens bred from pure stock? The question of faulty supers and ill-fitting hive covers might also receive attention; and lastly, why not keep a careful watch for skunks, toads, lizards, and bee martins? M. C. Richter.

Modesto, Calif.

* * *

In Southern California.—Honey prices are gradually advancing, and white orange honey is offered at 21 cents, with light amber at about 16 cents. As the season advances, the crop prospects seem to show that even a smaller quantity of honey will be produced than any of the early estimates led us to expect. This fact should tend to keep the price of honey advancing.

The market for bees is not nearly so active as it was some three months ago. Buyers were plentiful and one could have sold at almost any price asked. With prospects for a crop as they were in the winter and early spring, and also with the high price of honey in evidence, one could pay a big price for bees and apparently have a fair chance of getting most of his money back this year. The crop is a disappointment to most beekeepers, and the price is not so good as last year. But from past experiences, it would seem as tho with extracted

honey selling at from 12 to 20 cents a pound, it is a good business to stick to.

A man called here a few days ago and said that he intended going into the business. He said that he had enough income to support him but wanted to get into something to keep him busy. He thought that he would put from seven to ten thousand dollars into the business. If you had thought of putting that amount into bees twenty years ago, most people would have thought you "loco" (western expression for a little crazy). This man had traveled quite extensively and seemed to be well posted about locations, honey-producing flora, etc., some things very essential to the success of apiculture.

The sweet clover grew quite abundantly in some localities in the moist bottoms and along the ditch banks, but it is now (July 1) drying up very fast. This plant helps the colonies to get stores for winter, but only in very favorable locations in southern California is there enough to count on for any surplus honey. The blue curl, which often is a good honey-producing plant in the late summer and fall, this year promises little or nothing. Lack of sufficient rainfall during the winter and spring is quite likely accountable for its failure to grow this year. The sumac gave a good flow for a short period and helped very materially toward winter stores in some apiaries. While there was considerable bloom on many other varieties of our wild honey-producing plants, very little honey was secreted. It seems to prove again the old saying that it takes an abundance of winter rains to assure us of a honey flow.

Some of the beekeepers have moved to the valleys where the bees get some eucalyptus, alfalfa, etc., hoping to get enough for winter stores. The alfalfa, excepting in a very few localities where it is grown for seed, is not allowed to blossom in these sections. The farmers cut it for hay just as the bloom appears. About once every four or five years these fields are plowed up and planted to grain. The roots not killed by this process start to grow and often blossom and go to seed. These flowers are sometimes quite a help to the bees.

Reports from the lima-bean districts vary considerably. The older sections report that there is not much hope of any great quantity of surplus honey. These districts are near the coast and on years favorable for beans are visited by very heavy damp fogs. This year there has been a scarcity of these fogs, and the beans do not promise a large crop. Some of the newer localities, where irrigation is used, indicate better results. It has been reported that the honey from these latter fields is of a darker shade than that usually displayed as bean honey.

The beekeepers in southern California seem to be universally disappointed with



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the flow from wild buckwheat and white sage. I have yet to hear of a location in southern California that furnished a full crop of honey. Some farmers say that it is the driest season that they ever experienced. The water is very low in the mountain streams. Much of the irrigating water is pumped from wells, and these wells in many cases have been dug deeper in order to get below the water level. This shows a shortage below as well as above the earth's surface.

Corona, Calif. L. L. Andrews.

In Texas.—The visit of Dr. E. F. Phillips was thoroly appreciated by every beekeeper who attended the summer meeting at College Station. The attendance was small, but those present were able to carry home with them a good message from Dr. Phillips. Only once before, 1906, had Dr. Phillips been in Texas; but he has always been impressed with the possibilities of beekeeping in this State. He found that the beekeepers of Texas are now ready to admit that there is a winter problem in this State. However, few are yet ready to be sufficiently liberal with the bees to leave ample stores in the fall. Realizing the need for further work in this State, tentative arrangements were made to hold a Beekeepers' Short Course during the fall. The program will contain much of interest to every one in the State.

At the annual summer meeting the educational session of the Texas Honey Producers' Association enjoyed the best program in the history of the organization. Every one present was able to profit by the papers presented and the discussions that followed. Some came great distances to this meeting, but felt repaid for their efforts.

During the Farmers' Short Course at College Station a very interesting program was given on beekeeping. This was largely attended by people from every section of the State. Interest in improved methods is certainly increasing. The day of the box hive is doomed—education is winning.

Crop yields thus far have been very good indeed. Prospects are excellent for a good late summer and fall flow. Rains have occurred frequently enough to insure good flows from every honey plant. The price of honey is causing some worry. The price will remain good if the beekeeper does not force it down by putting all the honey on the market as soon as possible.

Now is the time to begin preparations for next season. Many colonies will need requeening. The colony should go into the winter with an abundance of young bees, if work next spring is to be of high quality. Do not take too much honey from the colony. Honey will be needed next spring to build up with. Best results are not secured by a tardy feeding after semi-starvation.

Several additional counties have become interested in the organization of a county beekeepers' association. Beekeepers are very ready now to appreciate the value of organized effort. Co-operation between the association and the State Entomologist in foul-brood control work is a sufficient example of immediate benefit for the association.

College Station, Tex. F. B. Paddock.

* * *

In Minnesota.—There will not be so large a crop of honey in Minnesota this year as was expected earlier. In some localities considerable loss has been suffered from high water. Hundreds of acres of pasture lands have been flooded, killing the white clover. Some commercial beekeepers suffered the loss of their entire crop thru floods. Many have reported that at times the clover ceased to yield while the fields were white with blossoms. There was an excellent yield from basswood in some places, while in others the buds were destroyed by worms. In some localities the crop was much larger than the average, so I believe that taking the State as a whole the yield will come up to the average—perhaps a little above.

But the Minnesota honey crop might easily have been doubled with the same number of colonies, if the beekeepers had only been awake to their opportunities. This year we had a remarkable flow from dandelion, but thousands of colonies came out of the cellar too light in stores to take full advantage of the flow. This summer I have met beekeepers having from 50 to 150 colonies, who have confessed that many of their colonies lived on the border of starvation in the early spring. Many beekeepers are satisfied if their bees have enough honey in the hive to keep them from starving, in spite of the fact that for years our leading beekeepers have emphasized, thru the pages of the bee journals, the "rich-in-honey plan." Mr. Doolittle has told us that after trying all other plans for stimulative brood-rearing he found that there is nothing that compares with the plan of "millions of honey at our house." And now Dr. Phillips and Mr. Demuth are telling us how they have demonstrated that one of the conditions that is necessary to secure a large force of bees ready for the harvest is to see that there is not less than 15 pounds of honey in the hive at any time, so that work will continue in the hive uninterrupted. I believe that if this rule had been adhered to, and sufficient room had been provided for the queen to lay, the Minnesota honey crop would have been double what it will be this year. And right now is the time to make plans for next year. See that each colony goes into winter with enough honey to carry it thru to the honey flow.

Minneapolis, Minn. Chas. D. Blaker.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Entrance-guard for Prevention of Robbing.

The accompanying sketch of an entrance-guard is like one made for me by an Italian friend, who kept bees for several years in Italy. He says that such entrance-guards were always used by beekeepers in the lo-



This entrance-guard for prevention of robbing extends clear across the hive. The wires are $\frac{3}{8}$ inch apart.

cality from which he came, and that they were of great value in preventing robbing. As I have never seen them mentioned in books nor in bee journals, I would like your opinion.

Frank R. Huff.

Chicago, Ill.

[This is of interest, altho we believe as good or better results could be obtained by throwing grass loosely over the entrance and dampening it with water.—Editor.]



Short Cuts in American Foul-brood Treatment.

I have had a great deal of experience with American foul brood, both in my own apiaries and as a bee inspector. It might be said that, to a considerable extent, I have made a business of curing foul brood, as I

have bought a number of apiaries that were badly diseased and have always been ready to buy any remnant of an apiary, provided the price was such that I could see any profit in it. In this way I have had an excellent opportunity to see how expensive it often is to try to save a little brood or a few combs. While I am not afraid of the disease, I have a wholesome respect for it and regret that some people believe it an easy and simple matter to control foul brood.

I have tried practically every method for the cure of American foul brood that has been proposed for the past thirty years. I have had some success with some of these short methods. I have even been guilty of recommending in the pages of Gleanings at least one of these methods, for which I am heartily sorry. The fault with all of the short cuts is that they are not sure cures, and in the long run it does not pay to use methods that may not only require that you do all your work over again, but perhaps a whole lot more in addition. In a very large proportion of cases the disease will break out again, even tho for a time, perhaps for several months, or a whole season, the colony will appear to be cured. All who are familiar with American foul brood know that when once an apiary is infected to the extent that there has been a considerable amount of robbing of diseased colonies, it frequently requires several years of the most careful work to get



Apiary of Page Brothers, Avon, N. Y.

HEADS OF GRAIN FROM DIFFERENT FIELDS

that apiary cleaned up again. New cases will be constantly breaking out, even when there is no apparent source of infection. The trouble appears to be that infected honey is stored in the hive in places where it remains for long periods without being used for brood-rearing. Then in some time of scarcity, usually in the spring, this honey is fed to the brood, and then we have the disease again. Any method that keeps in existence a dangerous source of infection is objectionable. Short cuts for the elimination of foul brood are not likely to be successful except when used by the expert, and he is the one least likely to adopt them. It is the inexperienced and the careless, the one who does not appreciate the risk he is running or the care needed in all his work with the disease, who is most likely to depend on such methods. The man who has had experience in handling foul brood can cure it, with considerable variation in methods according to the circumstances; but for the inexperienced, I honestly believe that total destruction of colonies that are diseased is not only the safest way, but nine times out of ten actually the cheapest way, to get rid of American foul brood.

Grand Junction, Colo. J. A. Green.

Keeping Waxworms from For preserving fresh extracting-combs from damage by wax worms after the extracting season, I have used for over 20 years a method which works well in this locality.

After the last extracting, escape-boards without escapes are put on the brood stories



Dr. C. G. Luft's winter case of poultry netting and tar paper packed with leaves.

of as many stands as I wish to give empty extracting-combs. Four stories of extracting-combs are put on over the escape-boards and left until about Oct. 15, and then put in the honey-house where they are safe until the next June. If carried in on a cold day, the combs will be clear of bees. These combs can be put out any time of day without damage from robbing, if the stands are strong in bees and the hives bee-tight.

Otherwise it is better to wait till evening. If there is foul brood in the apiary, the combs should be returned to the hive from which they came. These views show how I



Apiary of Dr. C. G. Luft, ready for winter.

winter my bees in cases of poultry netting and tar paper, packed with leaves.

Fremont, O. Dr. C. G. Luft.

The Unusual Flight of a Queen. A few days ago a small nucleus of mine swarmed out and settled.

I caged the queen and hived the bees. Having the bees in their home and the queen in the cage, I decided to carry her to a queenless colony in a small apiary located over half a mile away on the edge of town. Using the smoke method of introduction I undertook to run the queen in at the entrance of the hive, but she took wing from the cage and escaped. According to regulations made and provided, she ought to have returned to the cage after a short time. Some of her attendants clung to the cage awaiting her return, but she came not. After about an hour I gave her up as lost and returned home.

On going into my garden I saw a small cluster of bees, about a hundred, and others coming, and my queen with them. I caged her again, gave her a larger hive, more combs for her to exercise her laying abilities, and now she is happy at home with her own people.

I am quite sure of her identity. Her appearance was the same as the one I had observed before, and she had come back to within about 20 steps of the place where the little swarm settled when they swarmed out. I inspected all the other hives and nuclei, and found them in normal condition.

Carrollton, Ga.

L. K. Smith.

Bees Care for Injured Queen.

One day as I was adding some frames of bees to a hive, the queen left the comb and ran among a group of strange bees on the bottom of the hive. They began to attack her, and, before I could rescue her, one of them caught the

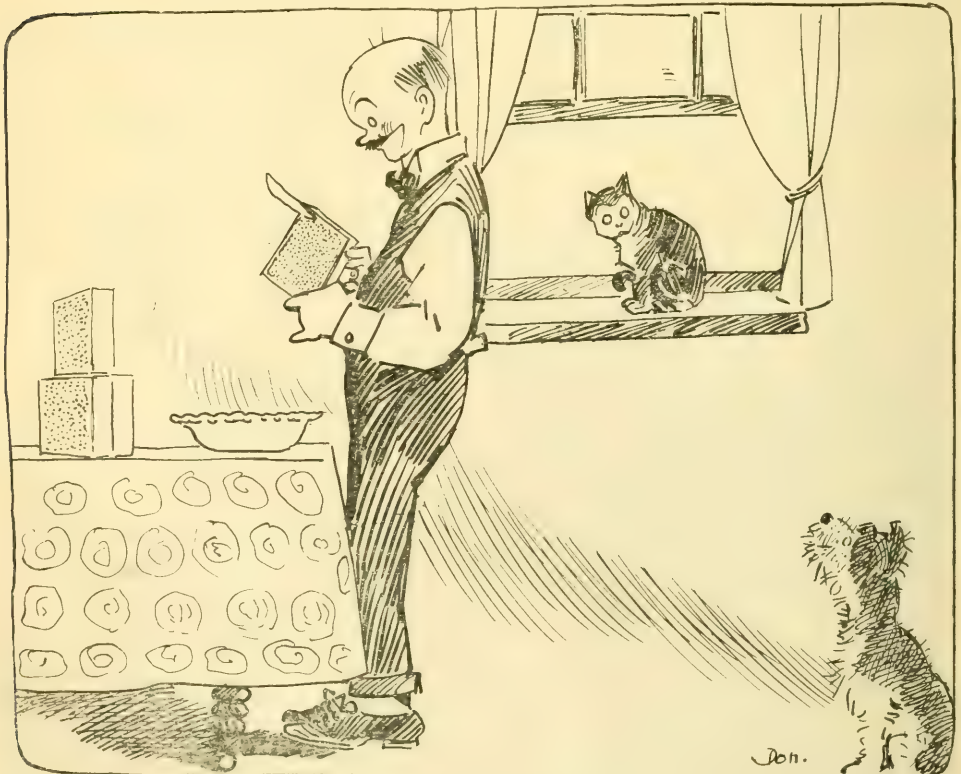
HEADS OF GRAIN FROM DIFFERENT FIELDS

point of its sting in the queen's side so that it stuck slightly when I crushed the bee and pulled it away. Immediately the queen acted differently from the way she had previously behaved. She seemed hardly able to hold on to the comb; and her own bees, either because of her condition, or because I had held her in my fingers, gathered around her in unusual numbers, feeding her and massaging her with their tongues and working over her. Then I noticed a small welt on her side about the size of a small pin head. This seemed to be about where she appeared to have been slightly stung. At the time I took it for granted that it was a slight swelling from the sting, but since then I have somewhat doubted whether that was possible. It may be that the welt was there previously, and that I had not noticed it. I expected her to curl up and die within a few minutes. Her at-

tendants, three or four minutes from the time I had rescued her, covered her over in their massaging and exceptional attentions, and I did not like to disturb her; but she was on an odd-sized frame that I wanted to remove from her hive, and she had to be removed to another frame. To do this I drove her attendants away with a little smoke and carefully placed her among others of her own bees between two brood-combs. She still seemed weak and dazed. She was immediately surrounded by a new retinue of nurses, that seemed to recognize her need of attention, and they repeated the performance of the bees from which I had just removed her. I closed the hive fully expecting to find her dead in front of the hive the next day, but a few days later I found her apparently as well as ever and laying nicely.

Seattle, Wash.

H. H. Benton.



THE BACK LOT BUZZER.

The war is over, booze has passed away, an' the wimin have the vote. Maw says, "There's nothing to worry about now but th' hives."

NOW that the honey has been harvested, the best of care should be given it until disposed of. The comb honey should be carefully stored, with no opening large enough for the admission of the wax moth, otherwise the honey may soon be in a disgraceful condition. If any sections are cased and are to be sold at stores, there may occasionally be a few having beebread. If so, these should be kept for home use or sold for immediate consumption. Honey from various sources differ greatly in their tendency to granulate or solidify, some granulating in a few weeks and some remaining liquid for a year or two. The temperature at which comb honey should be stored, as stated last month, is between 70 and 90 degrees, for if comb honey granulates it is unsuitable for market.

Care of Extracted Honey.

Well-ripened extracted honey may be kept for years with no special care on the part of the beekeeper. To be sure, it will granulate, but this will not injure its sale as in the case of comb honey. In fact, extracted honey ships all the better when candied, since there is certain to be no loss from leakage; and when one wishes to bottle the honey, it may be easily liquefied without injuring its flavor by heating in a hot water jacket to about 150 degrees and then bottling while still hot, at about 140 degrees. If extracted honey is stored for a time, it should be left in 60-pound cans or in small enough containers so there will be no difficulty in melting it after it becomes candied. If left in a large container, removing it after it solidifies will involve considerable work.

Hurting the Market.

The step at which the beginner is most likely to fall down is in the disposal of his honey. Just why, we cannot say, but the man or woman with a few colonies almost invariably gives all the honey away or sells far below the market price. Now if a beekeeper chooses to give his honey away, that is his own business; but when he sells at so ridiculously low a figure as he often does, then it becomes the business of every other beekeeper. In most localities there are one or more beekeepers who cannot sell as their fancy dictates, but are obliged to make their living from their bees. Such beekeepers are often compelled to hold their honey until the smaller beekeepers are sold out, and even then they are handicapped by the early low prices. At the present time there is no reason why any small producer should get less than 30 cents a pound for his honey in small packages, and many are getting even more.

Another way in which the beginner sometimes injures the market is by his careless preparation of the honey. The sections

TALKS TO BEGINNERS

By Iona Fowls

should be nicely cleaned and attractive in appearance. The unfinished and off grades should be used at home. Extracted honey should be in clear glass with

neat labels, and no scum of particles of wax and other material should be tolerated.

Care of Combs.

If the extracting combs after being cleaned were piled carefully so that no moth miller could find an opening large enough to enter any of the supers, the combs will now probably be all right; but as long as hot weather lasts they should be examined every two weeks or oftener, and if wax worms appear, the combs should be placed over strong colonies to be cleaned. Combs are altogether too valuable to be lost thru carelessness.

Time of Fall Feeding.

In some northern localities there is little or no fall flow, and breeding practically stops in September. Under such conditions, if the bees have not enough stores for winter, they may be fed in September. But in case there is a good fall flow, feeding may be delayed until October when there is less brood and therefore more room for storing. It is always an advantage to feed early so that the stores will be well sealed. When first placed in the cells the stores are too thin for good wintering; but if there is time before winter, the bees evaporate, or "ripen" the stores until of the right consistency, when they are sealed. Stores too thin or in any way poor often cause dysentery and death of the colony before spring. For when bees use poor honey, it results in more waste matter, and bees normally void their faeces in flight. Therefore if unable to fly for some time, this matter accumulates and often causes the death of the bees.

Requisite Stores.

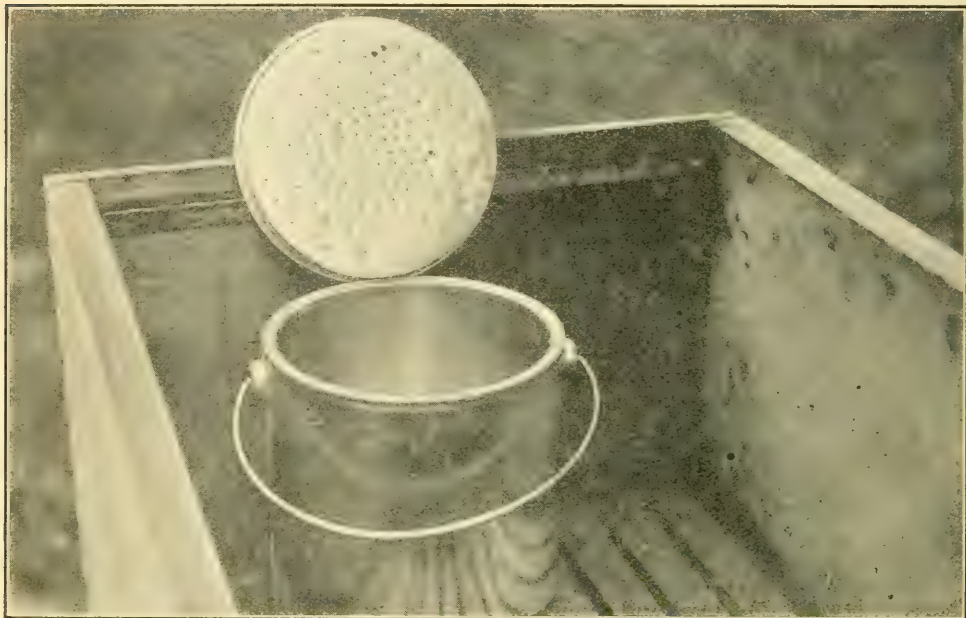
Those colonies wintered outdoors should be left with from 30 to 35 pounds, depending upon the size of the colony. It is probable they will already have considerable honey in the brood-chamber. Each full, standardized Hoffman comb contains five or six pounds of honey, so that by handling each frame and noting the sealed honey it will be easy to arrive at a general estimate of the amount of honey in each hive, and therefore the amount that will need to be fed. We do not estimate the unsealed honey since it is generally used up before winter. Each hive should be marked with the amount to be given. If one intends wintering in a double-walled hive, the 30 to 35 pounds of stores should be contained in seven or eight frames so that, if desired, the brood-chamber may be contracted as will be described next month.

There is considerable difference in the

wintering qualities of honeys, some of them having too large a per cent of resins and gums to be a good winter food. As already stated, if bees have frequent flights, such food is safe; but during the dead of winter it is apt to result disastrously, so that to be on the safe side, we have for years given each colony as much as ten pounds of sugar syrup to store on top of their honey. The colonies will probably not use more than ten pounds during the most severe weather, and so the syrup being fed last will be used first, and the bees will not get down to the undesirable honey until spring when they

may be placed at the side of the hive, to be removed later at the time of packing when the brood will have hatched.

Whenever there is a chance for a choice in the matter, old dark combs should be left at the center of the hive for the bees to cluster on, since the cocoons in the cells make such comb much warmer than new light comb. Wherever the last brood hatch there will be empty cells. As winter comes on, more than half of the bees will crawl into these empty cells using the cells for overcoats, the other bees clustering in between the combs and these overcoated bees.



The 5- or 10-pound friction-top pails with pierced lids make good feeders. Two parts of sugar to one of water is about right.

will be able to have frequent cleansing flights, and thus avoid dysentery.

Examination of Colonies.

While making the estimate on the requisite amount of stores, there will probably be no honey coming in, and therefore care should be taken not to start robbing. If any colonies are weak, their entrances should be contracted, and if the hives are open for any length of time it may be necessary to use a robber tent, for it would certainly be very bad for the colonies to become unduly stirred up at this time of the year when they should be quiet.

During the work, if weak or queenless colonies are found, they should be united with others; or the queenless one, if strong, may be given a good queen by the cage method. Crooked combs or those having too large a per cent of drone comb or too much bee-bread should be removed; or, if there chance to be some brood in them, they

Thus the bees during cold weather are in a compact spherical mass. This part of the combs which they occupy is called the brood-nest. If possible, the brood-nest should not be disturbed since this affords a good clustering space for the bees.

Method of Feeding.

The friction-top pail offers a very easy method of feeding. The lid is pierced full of holes made with threepenny nails or in some cases by machinery. These feeders are filled with syrup made of two parts of sugar to one of water, or even denser if late in the season; for late in the fall the bees become rather sluggish and if given syrup too thin may not evaporate it sufficiently. In cold weather the syrup should be thick and warm when fed.

When the syrup is ready to be fed, a deep super should be placed over the brood-chamber, the pail of warm syrup inverted

(Continued on page 617.)

THE East Tennessee Beekeepers' Association,

on July 29, held its first all-day field meeting at the apiary of Curd Walker, Jellico, Tenn.

The organization will plan another field meeting at an early date.

* * *

P. C. Chadwick of Redlands has moved to Delano, Calif. A lack of honey flow caused the move as his queen-rearing business could not be maintained at a profit in the South. This is perhaps the most giant undertaking by truck transportation yet attempted. He made a 30-hour continuous run, with relief drivers, and transported 200 two-story standard colonies, and 200 queen-mating hives, with a loss of only one-half of one per cent.

* * *

The annual field-day meeting and basket picnic was held by the Massachusetts Society of Beekeepers at the nurseries of M. W. Barrett, Hyde Park, Mass., Aug. 9. Prizes were given for the best sections of honey, the best demonstration of handling bees, and for the best hive of Italians. Professor A. C. Miller was the principal speaker.

* * *

The Minnesota State Fair and Victory Exposition, which is to be held at Hamline, Minn., from August 30 to September 6, gives considerable emphasis to bee culture, offering in this department \$1,100 in prizes. There are now 20,000 people engaged in beekeeping in Minnesota and it is estimated 15 million dollars' worth of nectar is going to waste each year. Minnesota appears to be keenly awake to the possibilities of beekeeping in that State.

* * *

Mr. Rae, formerly of the Bureau of Entomology, as announced in our last issue, had been working in New York, helping the beekeepers of that State to solve their bee-disease problems. He left the State to go into other business; but so long and urgent was the call for him to return that now he is a regular employee of the Department of Agriculture at an increased salary. When we heard that he had left beekeeping and gone into an entirely new field of work we felt just as we now feel about Dr. Gates—that the business had lost a valuable man. Mr. Rae has reconsidered and is now back in the ranks. May we indulge the hope that Dr. Gates will likewise come back to his own. He still loves the bees and his many friends engaged in keeping them.

* * *

There was a large field meet of Ohio beekeepers on August 7 that met at the apiaries of F. W. Leininger & Son at Delphos, O. Ohio beekeepers were especially favored

JUST NEWS

Editors

by the presence of B. F. Kindig, State Inspector, of Lansing, Mich. Mr. Kindig gave an address on the subject of organization and bee diseases. He is one

of the wideawake state apiarists of the country and at the present time is president of the National Beekeepers' Association. There were other addresses given; among them were two by E. R. Root, editor of Gleanings.

* * *

There was another enthusiastic field meet which the editor attended on August 9. It was held in South Lancaster, Mass., at the apiary of Miss Morse. While the crowd was not large, the enthusiasm was of the very best. Dr. Burton M. Gates, formerly professor of bee culture at Amherst, Mass., and later of Guelph, Ont., was scheduled to speak, but was unable to come. After some business was transacted, Mr. Root was given the whole afternoon. A basket lunch was served at this meet that was very enjoyable. The general report was that the season had been exceptionally good.

* * *

The editor recently attended two very important field meets, which he intends to mention at greater length in the next issue. The Eastern Massachusetts Beekeepers' Association was held on July 26 at the home of Charles I. C. Mallorey, Boston. The principal speakers were Dr. Burton N. Gates, Arthur C. Miller, J. C. Frisby, and E. R. Root. On August 1, next to the largest field meet ever held in the United States was held at Newark, N. Y., at the home of De-roy Taylor. The speakers were Pres. O. L. Hershisser, Kenneth Hawkins, E. R. Root, H. L. Case, Geo. H. Rae, S. D. House, and others. Between 500 and 600 beekeepers were present.

* * *

A very successful field meeting of the Maryland State Beekeepers' Association was held at the home and apiary of Walter E. Atkinson of Glyndon, Md., July 26. The Association voted to purchase its supplies co-operatively, and the purchase of approximately \$2,000 worth of supplies was secured at the meeting.

* * *

We regret to learn that the Western Honey Bee is losing its able editor, J. D. Bixby, who has recently handed in his resignation. We have not learned the name of his successor.

* * *

By recent act of the Pennsylvania Legislature the old Bureau of Economic Zoology of the Department of Agriculture has been eliminated, and there has been created a Bureau of Plant Industry embracing all the duties of the old Bureau with additional ones.

QUESTIONS.—

(1) I would be obliged if you will tell me whether any one of the following is considered a sign of either American or European foul brood: Queen of a hive being missing, queen larvæ diseased, drone larvæ diseased. (2) Is the drone whose mother was not mated considered a capable male and as good as a mated queen's drones in all respects? (3) Are the germs of foul-brood diseases carried on the bodies of the bees?
British Columbia.

Fred E. White.

Answers.—(1) In neither the European nor American foul brood have we found the queen apt to be missing. In both European and American foul brood the queen larvæ as well as drone larvæ may be affected. We believe, however, that it is rare for queen larvæ to be affected in case of American foul brood. Drone larvæ are more apt to be affected in European than in American foul brood. (2) We believe the drone whose mother was not mated is capable of fertilizing a queen; but because of the dwarf size of such drones, caused by being reared in worker cells, we would greatly prefer a drone raised in the ordinary way. (3) We have never seen anything to indicate that the germs of either kind of foul brood are spread by being carried on the bodies of the bees. There is very much on this subject which is not definitely understood at present. Contaminated honey is, however, the means of spreading both diseases, and European doubtless is often spread from cell to cell of an affected colony by the nurse bees carrying juices from diseased larvæ. This answer will probably not entirely satisfy you. It doesn't us.

Question.—(1) In keeping bees with chickens, won't the chickens eat the bees? (2) Will bees hurt pigs?
New Jersey.

W. Toppin.

Answers.—(1) A few have reported chickens eating bees but we believe you will have no such trouble. Many people keep hives right in the chicken yard. (2) If pigs are allowed in an apiary they will get stung, and then probably rub against the hives, thus enraging the bees, and possibly upsetting the hives; but, if pigs are near the bees, yet shut out of the apiary, we believe there will be no trouble even though the pigs should receive an occasional sting.

Questions.—(1) Why don't all of those people that want to stop swarming have a brood-chamber so big that the queen cannot get it full of brood at once? (2) I would like to know if palo verde, a tree that covers the Southwestern States' hills, yields a surplus. (3) Where could I obtain some stingless bees? (4) Why haven't we a law so that a man can take up a bee claim on a piece of land to prevent crowding?
Arizona.

Burns Wood.

Answers.—(1) If the swarming problem could be solved by giving plenty of room, it would not be such a troublesome factor in

GLEANED BY ASKING

Iona Fowls

beekeeping. We have known a colony to swarm when hanging from the limb of a tree with all outdoors for room. There is doubtless a great deal yet to be

learned on the whole subject, but we feel certain that the size of a suitable hive depends greatly on the season and locality. (2) Palo verde, altho it yields some honey, could not be counted on for surplus. (3) From South America, but tho they are rather interesting as a curiosity, they would not pay financially. (4) There are many points to be considered in formulating a law to prevent encroaching on another's territory. Such a law would need to specify the proper distance between apiaries, which of course differs with the locality and even varies from year to year as the forage gradually changes. More than this, priority might give a man the apparent right to a location, yet he perhaps be a renter and a poor beekeeper at that. Later a man might buy a home in the same locality and wish to keep bees. It would be manifestly unfair to deprive him of this privilege. There are many other puzzles that will naturally occur to one in this connection, but the puzzles are surely worth solving.

Questions.—(1) Can bees use old odds and ends of wax to draw out foundation? (2) I have a plan to keep bees with very little manipulating. I would have a regular Buckeye hive, but instead of resting it on the bottom-board I would have a shallow extracting super with full sheets of foundation for it to rest on. Under this, of course, would be the bottom-board. In the spring and fall it would keep the brood farther from chilling winds. Also, I do not think they would swarm with the foundation below. What do you think of the plan?
Massachusetts.

C. L. Stone.

Answers.—(1) Bees use bits of wax from adjoining combs and when placed in the entrance they do sometimes take it, but I do not think you could get the colony to draw out foundation by simply feeding them bits of wax. (2) On page 367 of the June issue of Gleanings, under the heading, "Another Swarm Prevention," you will find something similar. The editors of Gleanings tried this out this summer, using shallow supers under the brood-chambers; some with starters, others with full sheets of foundation, and still others with combs. Of course, in our locality this season did not result in many swarms anyway, but we rather think the plan of thus using starters may be of value, and intend trying it again next year.

Questions.—(1) How could I find a colony of bees? (2) When bees are gone only 10 minutes, about how far would you look for them?
Arkansas.

W. H. Lassiter.

Answers.—(1) A good way of locating a colony in a tree is to capture a few of the bees that are at work in the field, placing them in a box containing a little diluted

honey, and then watch their flight as you liberate them. By following in the general direction they take, and from time to time catching more bees, and again liberating them, you will be able to locate the tree. (2) If bees fly a mile in five minutes, and spend two minutes at the tree, one could estimate the distance of the tree by noting how many minutes the bees are gone, subtract two minutes from the number, and divide by 10. Therefore if they are gone 10 minutes the tree is probably about $\frac{4}{5}$ of a mile away. This is taking it for granted that the honey fed is of the same consistency as nectar.

Questions.—(1) Should an unmated queen get clipped, would she be mated and return to the hive? (2) How long will bees live without eating?

New Jersey.

Arthur Stiebritz.

Answers.—(1) If an unmated queen is clipped she will never lay anything but drone eggs, as she could not be mated. Queens are mated only when flying. (2) We have known bees to live over a week during the summer without eating if their honey-sacs were filled with honey at the beginning of that time. How much longer they could live we do not know.

Question.—If you give a frame of unsealed brood to a colony having a virgin queen, you sign her death warrant. Repeatedly I have done this and soon found the queen missing and cells started on the brood. Why is this? I have studied about it a great deal and have come to this conclusion: Bees prefer a laying queen to a virgin. This is well known. When they find eggs in the hive I think they conclude they have a laying queen somewhere in the hive and proceed to execute the virgin. If anyone can give a better theory, let us have it.

Georgia.

L. K. Smith.

Answer.—We know some consider it unwise to give eggs and young larvae to a colony having a virgin, but we have practiced this successfully for a good many years. The presence of the eggs and larvae causes the bees to gather honey and pollen to feed the young brood. This brings about a normal condition conducive to the queen's mating. Moreover, if the queen should happen to be lacking, the colony has a chance to raise another.

Questions.—(1) When should supers of honey be removed from the hive? (2) Should not some super room be given until frost to prevent too much crowding or possibly honey-bound queens? (3) Can good queens be reared in a two-frame nucleus?

Virginia.

J. T. Satterwhite.

Answers.—(1) When completely ripened, at least two-thirds sealed. (2) Whether or not super room will be necessary in the fall will depend entirely upon your locality. If you have a good fall flow you may be able to get some more surplus, but if the fall flow is light the colony will doubtless need all they store for winter. The queens, of course, should not be allowed to become honey-bound. If you find there is any danger of this, it would be well to remove a few combs of honey and give empty combs in the middle of the hive for the queen to lay in. (3) Good queens have sometimes been

reared in nuclei, but in general we advise raising them in large colonies. Of course, after queen-cells have been capped over, they may be given to nuclei to be taken care of; but the nuclei should not be so weak that there is danger of the queen-cells becoming chilled.

Question.—The following advertisement appears in the July issue of *Outdoor Enterprises*, Kansas City, Mo., page 61, column 2: "For Sale.—Australian Wine and Vinegar Bees. Big profits. They are very prolific, work day and night, and harmless. Keep in window of your house. Will start you for \$2.50 or give you six times as many for \$5.00." Is this a "fake?"

M. L. Dodson.

Kansas.

Answer.—That ad is certainly misleading. It refers not to honey bees but to a wild yeast that is called bees and is of very little value. A large number of beekeepers have called our attention to this ad. We find that extravagant claims have been made for the product, and the high price asked is apparently out of all proportion to its real worth.

Question.—July 1 I started transferring my colonies into Jumbo hives. I left three standard frames with queen and lots of brood in the Jumbo hive and placed seven Jumbo frames of foundation along with the three, supposing the bees would draw out the foundation, and in a few weeks I could raise the three standard frames to the super above and fill in with Jumbo frames and everything would be all right. The plan might have worked out had this been a normal season, but it has been a very abnormal season—old beekeepers say the worst in 20 years—as there has been no honey flow at all in any of my apiaries this season; consequently when I examined them yesterday I found some colonies with only two frames, some with three frames, and some with only one of the Jumbo frames drawn out and in no hive, were there more than five or six drawn, including the standards which I put in. Now the season is practically over, with the exception of buckwheat, and as we have had only one good rain, the chances for buckwheat are not bright. In quite a number of the Jumbo frames the bees have gnawed the foundation badly. Would you replace those? If not changed I would think the foundation would be built out with drone comb. They are a pretty ragged lot of sheets just now. Would you use the standard-sized combs and get them back into the old hives, placing the Jumbo frames with brood above and try it again next season, or will the bees build out foundation in the Jumbo frames by feeding sugar syrup or using frames partly filled with honey? Can you help me?

Ontario.

E. V. Tillson.

Answer.—If late the best thing to do would be to put the bees back on the old combs. This will give the bees a good chance to prepare the brood-nest for winter and the old combs will be much warmer than the new ones. If this problem arose as early as August one could replace the torn and ragged foundation with good sheets and then feed a sugar syrup, one part sugar to one part water, feeding slowly, using a feeder with about three perforations in the cover. If this should not give them the syrup quite fast enough, you could regulate it accordingly. We have often successfully drawn out foundation in this way during a dearth.

Question.—We are desirous of securing an authentic definition of the term "pure white honey." Kentucky. H. W. Riehl.

Answer.—Pure clover honey may be considered as typical of "pure white honey" by which others may be judged. Honeys only a trifle lighter or darker, so that it would take an expert to detect the slight difference in color, are also classed as white.

Questions.—(1) I think honey loses quite a part of the fine flavor after taking it from the comb. Is that right? (2) I have wintered outdoors in double-walled hives, setting eight or ten close together in the fall and banking on three sides with boughs, weeds, or hay. The bees get to flying well before I remove the banking. How shall I separate them without moving a little every day? Maine. L. H. Fletcher.

Answers.—(1) To a slight extent we believe this is true. (2) The easiest way would perhaps be to move them a little each day as suggested in your letter, provided there are only a few colonies. If there are many, you could move them to a location several miles away, leave them for a couple of weeks, and then return to your own yard and place them wherever you desire. This would, of course, be considerable work.

ANSWERS BY JOHN H. LOVELL.

Question.—I have noticed bees working on a small gall that grows on the twigs of the scrub oaks. Thinking this might be of interest to you I am here sending a twig with some of them attached. Is it honeydew they get from those galls? Wisconsin. P. B. Brown.

Answer.—The oaks yield no nectar either in the North or South. The oak is a typical wind-pollinated flower and offers no allurements to insects. Why then should it secrete nectar? It would be of no benefit to the plant. Anyone who will examine the flowers under the microscope will not suggest such a thing. The only criterion is the observation of the nectary and its secretion of nectar. But there are probably no plants which furnish more honeydew than the oaks. This dew is excreted largely by bark-lice (*Coccidae*) which so closely resemble galls or buds that they have deceived many people, even some entomologists. For further details see article on Honeydew in A B C of Bee Culture, last edition.

Question.—I would like a description of jackass clover, and would like to know where the seed can be obtained. California. L. M. Cox.

Answer.—Jackass clover is an erect rank-scented annual, abundant in the San Joaquin Valley, Calif. The leaves have three leaflets, resembling the leaves of clover, but the species belongs to the Caper Family (*Capparidaceae*). Flowers yellow in clusters. It yields a mild water-white honey, which granulates with a fine grain in three or four months. It is reported to be rapidly spreading and to be a most promising honey plant, which may in time rival sage and alfalfa. It is said to bloom only every other year. Bees visit it in great numbers. The name jackass clover was given to this plant by H. T. Christman of Coalings and is chiefly known among bee-

keepers. The seed is not offered for sale by any of our eastern seedsmen, and probably it would be necessary to gather it from the wild plants. No attempt seems to have ever been made to cultivate this species. Perhaps the Agricultural Experiment Station at Berkeley, Calif., could give some information on this point.

Question.—My neighbor has an apricot tree which blooms every year, and in the time of bloom the tree is usually loaded with bees, but it does not bear. One of my neighbors says that the bees are the cause. He says they take too much "juice" out of it. Is this true? Pennsylvania. Clarence H. Ziegler.

Answer.—The apricot (*Prunus armeniaca*) belongs to the same genus as the peach, plum, and cherry (*Prunus*), and has essentially the same structure. If the nectar secreted by the flowers of these trees were not removed by bees, it would be of no benefit to the trees nor to the fruit—it would merely go to waste. In removing it bees do no harm, as any one can easily observe. But in making their visits bees effect cross-pollination, without which many fruit trees remain nearly or wholly unproductive. The apricot trees remain barren because of the absence of a variety suitable to effect pollination. This is also true of many of the closely allied plums and cherries.

ANSWER BY DR. C. C. MILLER.

Question.—Can you tell me what is wrong with my comb-honey production? I have only a few colonies, part in eight-frame Langstroth hives and part in Danzenbaker hives. Under the same treatment each year, I am able to get a surplus only from the Danzenbaker colonies. They seem to winter better, are stronger in the spring, and go readily into the super with bait combs. The eight-frame Langstroth hives supplied with supers and bait combs and full foundation in the 4¼ sections produce nothing. The hive-body will be filled with honey and brood, the bait sections filled, and the colony trying to swarm without drawing out the foundation in the sections. The colonies which give the surplus are hybrids, while those that do not are golden Italians. All were queened last year with queens that were supposed to have been tested Italians. I prefer the Langstroth frames if I can only get them to produce some surplus. Oregon. W. E. Smith.

Answer.—The case is puzzling. The bait section being filled and the foundation in sections beside it not drawn out, indicates either a poor flow or a weak colony. But in either case why should they try to swarm? You say the Danzenbaker colonies winter better and are stronger in spring. I cannot believe that can be accounted for by the difference in hives. As there are only a few colonies, it may have just happened the better colonies were in the Danzenbaker hives. You say the bees that give no surplus are goldens, the others hybrids. It is not impossible that you have a poor strain of goldens. At any rate, if I were you I would not give up the Langstroth frames without further trial. At a time when a Danzenbaker colony is storing, if a Langstroth colony with as many and as good bees is not storing, then your bees are utterly different from mine.

ARE colonies weighing two pounds on April 15 profitable? According to G. C. Greiner in the August American Bee Journal, Mr. Demuth

thinks they are not, while Mr. Hershiser claims in his locality very few colonies would weigh heavier at that time. Mr. Greiner believes the difference of opinion due to locality and says his whole crop comes from such colonies that either weigh two pounds or less, or are made so by division. If undivided he finds at the opening of the honey flow a large percentage of his bees are old worn-out fielders exerting their last vitality in preparing to swarm. If the colonies are divided, his bees the fewer in number are nearly all young energetic workers doing their best at storing.

* * *

In answer to the question, "What is the quickest and best way to rid bees of foul brood?" the editor of the California Honey Bowl (July) replies, "Amend our present laws so as to allow bee inspectors \$5 a day and expenses. Compel them to remain on the job until diseased apiaries are cleaned up, force all beekeepers to keep bees on movable combs, retire all inspectors over 60 giving them a 'good service' button, and put in young, well-posted, energetic bee inspectors, and the job is more than half accomplished."

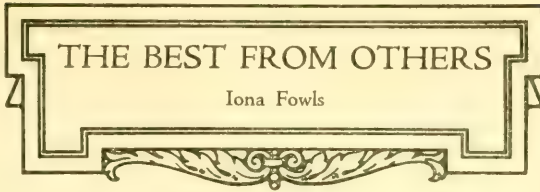
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The advantages of the large hive may be secured without heavy lifting, according to Mrs. C. E. Fowler in the August issue of the Domestic Beekeeper. She advocates a sectional hive of 10-frame bodies 5 11/16 inches deep, using frames with 7/8 x 1/2 inch top bars, 3/4 x 1/4 inch bottom bars and 5/8 inch bottom starters. She says with this arrangement one has practically continuous frames extending from the bottom to the top of the hive so that the queen readily passes from one story to another.

Whatever one may think of sectional hives of shallow supers, it is true that the value of frames with narrow top bars and all-worker comb securely attached to top and bottom bars so that bees pass more readily from one story to another, has never been strongly enough emphasized.

* * *

The disposal of the honey crop is the subject of an address by C. P. Dadant, which appears in the July issue of the Beekeeper's Item. In urging greater co-operation and organization, Mr. Dadant says the benefit of an association does not lie in securing for its members greater benefit than is possible for those outside. A policy of exclusiveness, he believes, will always react on the association, for it will result in beekeep-



Iona Fowls

ers outside of the association disposing of their crop at such prices and in such condition as to injure all sales. Not only does he consider it an advantage

for an individual beekeeper himself to join, but it is to his interest to have as many others as possible also join. He continues: "I have often heard it said that there are already too many beekeepers and that we should dissuade people from engaging in that occupation. But the truth is that millions of human beings who know, from hearing it repeated, that honey is the best, purest and healthiest of sweets, do not get a taste of honey from one year's end to the other, because the unwieldy distribution of the product makes the retail price very often twice the amount that the producer has obtained. When we get the distribution arranged so that the cost to the consumer will be only a trifle above the net price obtained by the producer, there will be unlimited sale for our product."

With organization he believes everything may be conducted in the most economical way, and the honey arrive at its destination in the best possible shape and with the least waste and expense. Tho each state and district must manage its own affairs, he thinks it would be well to be united still further, perhaps as an affiliation such as the National Association of Beekeepers is now planning, so that matters of interest to all beekeepers and all beekeepers' associations may have a channel thru which the necessary information may be spread to those interested in it.

In conclusion he says: "Let it not be thought these matters might be objectionable to the large dealers and handlers of beekeepers' produce. The sooner beekeeping is carried on in a businesslike way, the more successful will be all those who have anything to do with it."

* * *

The beekeepers seem to be working as a unit towards prices almost as good as last year's, and this they should have in order to compensate them for the high prices of all supplies, tin containers, etc.—M. G. Dadant, American Bee Journal.

* * *

While this season has been very disappointing to many beekeepers, 1919 is not to be the last year of beekeeping in California. Do not think of what you might have sold your bees for last spring, but of what a fine crop you will produce when all things are favorable.—L. L. Andrews, August Western Honey Bee.

* * *

Prophesying low prices is the most effective way of lowering prices.—Eugene S. Miller, August Domestic Beekeeper.

I ARRIVED home last Sunday eve, after a trip of nearly five weeks. I surely had one good time all the way around. I called on Dr. Miller, and found him and his dear women-folks just the same as I always found them there during the past 30 or 35 years. While Dr. Miller is in his 89th year, he seems to be as well and chipper as he was nearly 20 years ago when we went to the Los Angeles convention of the National. You will remember that was the time when "A. I." and four others of our party walked down and up the Grand Canyon of the Colorado, and nearly collapsed in the effort. But Dr. Miller was wise as usual, and staid at the hotel "with the rest of the women!" It did me lots of good to see "A. I." and Dr. Miller on my trip. Those two "old boys" surely have done their share to put beekeeping on an enduring basis. They have not only been blessed, but have been a great blessing to others.—George W. York, Bonner County, Ida.

One would gather from the writers that the skunk should be exterminated. Now as a beekeeper I have had little trouble with skunks. They do not visit the apiaries only in exceptional cases and where one is found working at the hives, it is an easy matter to trap him. Now the skunk is one of the greatest friends the farmer has in that he is a great vermin-destroyer. His natural diet is mice, ants, and all sorts of insects. Also he is a great destroyer of white grubs. One skunk will kill more mice in a season than half a dozen cats. The skunk is protected by law not merely to conserve him for his hide but for the value of his services as an all-around vermin-destroyer. — P. A. Seager, Allegany County, N. Y.

I notice an article in your paper in regard to skunks troubling hives. A fence of poultry netting around the bee-yard should prevent all that. In the last 40 years skunks have done but little damage on this farm. One took six or eight young chickens, and others a few eggs. I think that five dollars would cover the entire amount of loss. In return they have destroyed untold numbers of white grubs. I have seen several acres of pasture land where one skunk family had taken a grub out of about every square foot. Skunks have been almost all trapped off in this locality in late years, and in consequence the grubs destroyed almost all the pasture in the country. The sod could be lifted up like a blanket. The little white clover was almost all killed out. It is safe to say that millions of dollars of damage was done to pasture alone—to say nothing of crops destroyed in this one county, a great part of which would have been saved

BEES, MEN AND THINGS

(You may find it here)

if skunks had been let alone. But then if a robin eats a cherry, kill it regardless of the good it may do; and if a skunk eats a few bees because the own-

er was too shiftless to put a fence around them, kill it also and be sure to give neither of them a fair trial—let it be lynch law.—Wm. C. Kelsey, Cook County, Ill.

Permit me to offer a few thoughts on the question of H. H. Winger, page 387, June Gleanings. He should not give queen-cell till the colony realizes its queenless condition, otherwise, the bees will destroy the cell. Wait till they begin cells of their own, then give them a ripe cell. Emerging first the queen from the cell given will destroy the others. You can depend on this except occasionally, in swarming time when the first queen emerging may lead out a swarm, leaving those started by the colony to hatch later. To avoid this trouble you might destroy all the cells started by the colony.—L. K. Smith, Carroll County, Ga.

In the description of the Jay Smith cages, page 499 of August Gleanings, Mr. Smith in speaking of releasing the queen makes no mention of queen-cells or the time of releasing the queen. The queen should be released in about four days, and at that time the queen-cells should be torn down. For oftentimes the queen does not tear down these cells, and in that case the colony will swarm or the queen be superseded.—J. E. Thompson, Medina County, Ohio.

A few nights ago when out listening to the bees ripening honey, I found a big frog at the entrance of a hive. I had noticed for some time that bees were disappearing, so altho I had never heard of frogs eating bees, I killed this frog on circumstantial evidence and next morning I performed an "autopsy" and found him well filled with bees.—J. S. Ford, Santa Cruz County, Calif.

You should be SHOT for publishing "Does Beekeeping Pay?" in your last paper. The average location and the average market are badly overstocked. Why rush a lot more in? The worst trouble of beekeepers is not from disease, but from competition both as to location and markets. In this district the bees are so well hidden that altho we are overstocked and no locations left yet a stranger traveling around could find practically no bees. Naturally we bee-man will sidetrack any one who comes in, if possible.—V. V. Dexter, Kittitas County, Wash.

I am sorry (or glad) to say, I and my fellows have no idea about "foul brood." There are not the both (American and European) foul brood in Japan. And, there is no I. O. W. disease.—Yasuo Hiratsuka, Japan.

IN Our Homes for August I mentioned some of the indications that the spirit of the Lord Jesus Christ has been coming here on earth ever since I have been able to look at and over humanity. Just recently another thing has suggested itself to me—the work of Christ's spirit or the Christian spirit. Fifty years ago pro-

fane swearing was so common that one could scarcely pass along the streets without hearing it. We heard it on the cars, we heard it in places of business; and some of the boys and men who operated our railways seemed on a sort of rivalry to show the traveling public who was most proficient in taking God's name in vain. Is it not true, dear friends, that a great change is taking place? In one of my visits to the late Prof. A. J. Cook, who was then connected with the Agricultural College of Michigan at Lansing, he, together with his wife and myself, made a little trip out in the country. Some fellow who sat near indulged in such a strain of oaths and curses that Mrs. Cook put her hands up to her ears; and there was such an expression of pain on her face as I shall never forget. Is it not true that a great change has come over the world, especially over the traveling public? I really believe it is years and years since I have heard such a string of oaths and curses as I used to hear in the years gone by. The advent of prohibition has helped the matter greatly.

I remember away back shortly after I was converted there was a notorious character in our town who used to go out on the street and fairly yell his oaths and curses until quite a crowd would collect around him. At one time while I was at quite a distance I heard him holding forth. I meditated that, if I rebuked him in his partly intoxicated condition, he might turn on me, but I decided to take the chances. I walked up with hasty strides; but his back was toward me so he did not see me coming. The crowd did, and began to snicker and look in my direction. "Dave" finally turned around and saw who was

OUR HOMES

A. I. ROOT

Thou shalt not take the name of the Lord thy God in vain.—EXODUS 20:7.

Let your communication be Yea, yea, and Nay, nay; for whatsoever is more than these cometh of evil.—MATT. 5:37.

Let the words of my mouth, and the meditation of my heart, be acceptable in thy sight, O Lord, my strength and my redeemer.—PSALM 19:14.

Wash me, and I shall be whiter than snow.—PSALM 51:7.

coming. As soon as he got a glimpse of me he stopped abruptly. Then the crowd began to laugh. Somebody ventured to say, "Why, Dave, what is the matter? What made you stop all at once as soon as you saw Mr. Root coming?"

He hesitated a little while, and then with a comical smile on his face said,

"Why, boys, Mr. Root and I belong to the same church."

The idea that poor Dave was a member of *any* church, or ever had been, was so utterly ridiculous that the whole crowd broke into a big laugh with cheering. After Dave had sobered down I paid him a visit, and we had a long talk. He promised me to stop drinking, and *did stop* for a *whole year*; but, oh dear me! with the open saloons we had at that time, and the many temptations surrounding him, Satan got him, I fear, after all.

Out in Petaluma, Cal., there is a weekly poultry journal published. So far as I know it is the only weekly periodical of the kind in the United States. But it has been running quite a number of years and still keeps up. Of course, they urge everybody to keep chickens. Here is a brief clipping from their latest issue:

Raising chickens is a pleasant business, and the chickens themselves are a delight. They are good companions, optimists every one, always singing and never swearing.

By the way, the last sentence reminds me of the old saying that "curses come home to roost, but roosters never come home to curse." I confess I never thought of it before; but is it not true that chickens, especially laying hens, are always happy when they have decent care and surroundings? and sometimes their singing is just as happy and joyous, especially the cackling after the egg is laid, even if their environments *are* poor and shabby. Shall we not take a lesson from our feathered friends? The idea of chickens swearing suggests a little item I saw years ago in some periodical. I believe it is well known that when parrots are learning to talk they are especially prone to get hold of "swear

words." This injures their value. No one wants a parrot that swears. It is true that saloon-keepers, or at least some of them, *might* consider a swearing parrot a good advertisement for their business; but, may the Lord be praised, saloon-keepers and saloons are now a thing of the past, or very soon will be. Well, this little story was, I suppose, made up. It told of a man who had a swearing parrot, and he was determined, if it were a possible thing, to break it of the habit. Accordingly, every time he heard the bird swear he not only gave it a good scolding but soused it in a barrel of rainwater. After one such baptism it was walking about and trying to shake the water off its feathers in order to dry out a little better, and went around the house to get into the sunshine. It happened that morning that somebody had neglected to replenish the dish where the chickens usually got their water. Some of them discovered they could get a drink by flying up on the barrel containing the rainwater. As a matter of course, three or four were pushed in and were nearly dead before the good wife found them; but as they showed some signs of life she put them down in the sunshine, thinking that that would revive them. Well, Mr. Parrot, when he went around the house, got a glimpse of the drowned chickens. He tipped his head on one side to survey the conditions for a minute and then broke out, "Huh! little —— fools. Been swearing, I suppose."

Maybe you wonder why I have given space to such a foolish yarn as that. It is because it illustrates so well how hard it is to break the habit. Why should any one take the name of the great God and Father above in vain? and especially why should any poor, infirm child of humanity undertake to link together heaven and hell, particularly as there is between the two places a great gulf so that the Savior said it is impossible for any to pass from one side to the other. It is not only the parrots; but the children, if they hear such words uttered, are almost sure to learn to use them. Years ago, when I was on the school board of this village, swearing in the juvenile building became so prevalent that the school board was asked to do something. I went and talked to the children, and got them to feel well enough acquainted so as to tell me *where* they got hold of such awfully bad words. They said they heard the men on the streets on their way to and from school use such talk; and I finally went out on the street myself to see how far it was true. Then I put an article in our county papers; and when I heard a man swearing I kindly reminded him that

the children in the streets would hear his words and pick them up. Then the question came, "Why do children—yes, and grown-up people—catch on to such words and use them, more than anything else?" My good friends, the explanation is that the "prince of the powers of darkness" makes it his business to encourage that kind of disloyalty—yes, I think we may call it anarchy—against the great God above and against his holy laws. Words that I heard uttered in my childhood come back to me even yet. It seems as if Satan himself stands near by when I happen to be severely provoked or vexed, and pushes a bad word out before me and suggests, "Here! that will fit the situation exactly." Why, as good a woman as Mrs. Root is—and oh, how many times I have thanked God for giving me such a partner in life!—as good a woman, I say, as Mrs. Root is has confessed to me that sometimes when she is sorely tried, and perhaps very tired, "harsh words" come into her mind in spite of anything she can do. Of course she says, "Get thee behind me, Satan," and banishes all such thoughts and feelings as speedily as possible. My remedy at such times has been for years past, as you may know, my little "emergency" prayer, "Lord, help."

Somebody has said—perhaps it was the *Sunday School Times*—that the person who swears is never truthful. Look about you and see if it's not so.

And now, dear friends, with the above preface I hope you will be able to see and take in the glorious beauties of that wonderful text I have quoted so much of late—"Let the words of my mouth, and the meditation of my heart," etc. You certainly know the rest of it by this time. First and foremost, be very careful of what you say. Do not, under any circumstances, let a word get past your lips that you may afterward regret having spoken. And then, after that has been done, go a little further and do the same with the "meditation of your heart." Shut out every unkind and uncharitable feeling. Do not let it gain a lodging place. "Do good and lend, hoping for nothing again." Return good for evil. Let the Holy Spirit, even the spirit of Christ Jesus our Lord and Savior, have a permanent abiding place in that heart of yours. I am bad and wicked even yet at times, but I am making progress; and I am becoming happier and happier every day because of the progress I am making. I have just had a refreshing sleep down in the cool basement of our little cottage; and as I woke up refreshed and ready for work in the garden adjoining, or

refreshed for writing our Home Papers. I felt like shouting praises to God. Several snatches from our beautiful hymns came into my mind. In thinking about how I was succeeding in banishing evil thoughts I remembered that hymn and our closing text:

Wash me, and I shall be whiter than snow.

What a suggestion! Not only as pure and clean, *in thought*, as the beautiful snow is in color, but even *whiter* than snow, as the psalmist expresses it.

And then there is another old hymn which says:

Redeeming love has been my theme,
And shall be till I die.

And when I consider again that slavery has been put down, that lotteries are debarred by law, that wars are to be no more, that the troubles between capital and labor are to be settled in a Christianlike way, and finally, as I believe, that profane swearing, like strong drink, is going to be considered so low and disgraceful that the great, wide world will have forgotten that men and boys were ever guilty of anything so low in the eyes of a righteous God, I again take heart. Then shall not only our nation but the whole wide world unite in that grand and glorious hymn,

Hail to the brightness of Zion's glad morning!
Joy to the lands that in darkness have laid!
Hushed be the accents of sorrow and mourning!
Zion in triumph begins her mild reign.

STOP! LOOK! LISTEN!

So many accidents are happening of late—and not only accidents but deaths—by the cars running into automobiles full of people that I have felt like lifting up my feeble voice in warning people to be more careful—especially those just learning to run an automobile. Almost every paper you pick up contains more or less reports of accidents and even deaths because people do not (and it almost seems will not) “stop, look, and listen.” In front of our group of factory buildings there are six pairs of railroad tracks. The main traffic road has three tracks, and there are three side tracks that lead down to our warehouse and connect with another road, crossing the main road at right angles. A flagman is stationed on the main track with his big emblem reading “Stop.” Well, it has been my fashion for years past, especially when in a hurry, to stop on the thirty-foot space between the two groups of tracks. The tracks of the first group are seldom used, when compared with those on the main track. Well, just after dictating the Home paper above I was asked to take a hurry order up town before the whistle blew. The

watchman stood on the main track and held up his card with the “Stop” on it; but, as I was in a hurry, I thought I would get over on the space between the tracks, taking it for granted that there was no train coming except on the main track. I got just halfway over the first group when I saw a freight car backing down on me. Before I saw it at all, it was so close to my electric that it was a question whether I should back down or go ahead. In the fraction of a second I made my decision and crowded on the highest speed of the car. It took a big jump forward; but notwithstanding the jump the flagman says the freight car actually rubbed on the rear guard of my auto. Very likely my deafness prevented my hearing the freight cars that were backing down. I am not only just now thanking God that I am still alive, saved by what might almost be called a “hairbreadth escape,” but I am also reminded that people like myself, even if they are close on to 80 years of age, are not too old to be taught; and, finally, dear friends, shall we not only “stop, look, and listen” when we are crossing railroad tracks, but shall we not all together resolve to *stop, look, and listen* more intently when Satan tempts us to use bad words or to harbor unworthy thoughts?

THE HIGH COST OF LIVING, THE HIGH COST OF DYING, AND HIGH COST OF “GETTING SICK.”

I think I might with great propriety add to the above the high cost of growing old. I shall be 80 years old in a few days if I live that long; and I have great cause to be thankful that I have lived *so long* and kept *so well*. But I think our best authorities recommend that old people, as well as almost everybody else, had better have a good doctor look him over once a year and maybe oftener. In view of this I listened to the children a few days ago and consulted one of the best physicians in Cleveland. He said, as the others have said, that it is a pretty hard matter to “make an old man young again.” As he had quite a number of other patients waiting he looked me over for perhaps 15 or 20 minutes. The charge was \$5.00. Now, I do not object to that, mind you, especially if you get advice from our very best up-to-date physicians. The children recommended him because, they said, he gave little or no medicine. After he had got thru he gave me a prescription. I presume a good many people carry these doctors' prescriptions to the drugstore without even looking at them. I have learned by experience the wisdom of

looking at everything—in fact, scrutinizing everything carefully that I have to pay money for. A ticket agent not long ago gave me a ticket for the wrong town; and had I not noticed it before the train left I might have been in a peck of trouble. Well, this prescription read “Sodium nitrate,” so many grains or scruples. I do not know what doctors’ characters mean. The rest of it was “Aqua pura.” This I should call Latin for pure water or distilled water. Well, nitrate of soda is a fertilizer, and is sold by the ton. I do not know just how much a pound of it would cost; but even if chemically pure it ought not to be very much for, say, a teaspoonful. I supposed the price would probably be a dime or perhaps 15 or 20 cents. The drug clerk carried it to his employer, and they talked over something about it; but the price was 75 cents. Now, we have a lot of doctors and a lot of druggists who take and read our journal, and I have no desire to pitch into them. In fact, it pains me to interfere with anybody’s business; but when the good of the rest of humanity demands it I hope I may not be found shrinking from my task. Let us go back a little.

In this journal for September, 1914, I told my experience with enserol. If you have the back numbers I shouldn’t wonder if it would pay you to hunt it up and read it again. Somebody sent me a little pamphlet telling how a woman was cured of deafness and a bad trouble in her ears. This woman professed to be a Christian. She said she had prayed over the matter, and that God in his love and wisdom directed her to a remedy. You are to go to the drugstore and have a prescription put up calling for glycerine, enserol, and boiled water. I knew what the glycerine ought to cost, but I did not know anything about enserol. I threw a half-dollar down on the counter for it; but the clerk explained that enserol was a very expensive medicine. I used the prescription according to the directions every morning, noon, and night. It took quite a little time, and finally it got to be rather monotonous, especially as I could not discover that it did a particle of good; and I had faith, too, from reading that little book.

Just about this time our Agricultural Commission at Columbus sent out a pamphlet warning people against the medicine swindles. This same “fluid” enserol stood at the top of the list; and they explained that it was nothing but cinnamon water and boric acid. My prescription cost me \$1.40, and the whole thing could be sold for *five cents a gallon*. (How is that for “H. C. L.?”) I went to the druggist and

remonstrated. Said he, “Mr. Root, I got the same pamphlet from Columbus that you mention. But we are helpless in this matter. An agent left the enserol medicine with us, and said there was to be no pay unless we sold it. If customers called for it we were to sell it for so much.”

This druggist thought that no responsibility rested on his shoulders if customers came in and asked for enserol. I think that, before taking their hard-earned money, he should have showed them the warning, in that pamphlet sent out by the State of Ohio.

Why do I bring the matter up now? Because our daily papers are full of like advertisements. I have not investigated all of them, for I have not time; but I have bought almost everything offered for relieving sore feet, curing corns, bunions, etc. This particular medicine that makes your corn “drop right out,” roots and all, in just a few days, is not only advertised in all our dailies, but in our magazines, often occupying a whole page. To be sure that the “men folks” will all notice it, they picture a woman holding her dress up a great deal higher than she needs to do, to explain the way in which she applies the medicine to her corn. Well, Mrs. Root and I have tried nearly everything advertised in that line. The directions are to soak the feet 15 minutes in water as hot as you can bear it; then rub off as much of the corn as you can before you apply the remedy. (And this will do a lot of good without any “medicine.”) Yes, these things do *some* good; but a good sharp knife handled carefully will do just as much good, and I have decided more, and it is less trouble and less expense. The circular piece of cotton with mucilage to hold it in place so that the shoe may not press on the sore spot is sensible, and I believe the price is reasonable. But it is some bother to keep fussing with them. The soaking of the feet in water as hot as you can bear it will often do the business without any medicine. This same remedy was first advertised at 35 cents; but just as soon as a big demand was created the price went up to 50 cents, with some more “cents” added for war tax.

Several times I have warned our readers against having anything to do with any article or any institution that waits, we will say, for you to bite at their bait; and if you do not soon “bite” they will follow it up with some ingenious story as to why you can have it at half price if you order right off “instantly.” Some of them later on come down to a still lower price. The

latest thing in that line was a remedy for bunions. They sent me a sample patch to try. I put it right on, and it did help for a few days. Then my bunion or callous place was just as bad as ever. The price was \$1.00 for five patches. I thought that was rather expensive. Then I tried the corn remedy. I think that was sold for 25 cents for five patches. It was perhaps about as good as or perhaps a little better than some of the other medicines I have used, and I do not know but I should have sent for more if the price had been more reasonable. But just this morning I got a notice that, for particular reasons, they would sell any of their stuff at half price if you would send right off, and then they added:

Remember, that while you have the opportunity to get quick, permanent relief, you must avail yourself of this special offer *now*, as it will never be made again.

Just now in a little magazine called *Farm and Home Mechanics* I found the following:

THE DRUGGIST'S TURN.

The druggist danced and chortled till the bottles danced on the shelves.

"What's up?" asked the soda clerk. "Have you been taking something?"

"No. But do you remember when our water-pipes were frozen last winter?"

"Yes, but what—"

"Well, the plumber who fixed them has just come in to have a *prescription filled*."

The above is, of course, a joke; but such jokes sometimes do a lot of good. The moral that is pointed out is this: That it seems to be a part of the drug business, at least that of some druggists, to put any fancy price they please on a doctor's prescription—at least when it comes from a big city doctor. Now, here comes in another thought: One of my brother's sons is a doctor and a good one, and a professing Christian. I once talked with him about fixing a doctor's fee according to the financial standing of the patient. He replied something like this:

"Uncle Amos, when a doctor is called he can not go to Dun and Bradstreet to see whether the patient pays his debts or not. He is in duty bound to respond to every call to relieve suffering and save life, no matter what it costs. Now, there are many people who do not pay and never expect to pay. Is there any other way for the doctor to get a proper salary than to let those who are abundantly able, help take care of those who have nothing to pay with?"

Do druggists have to *give away* expensive medicine, in like manner? Not much!

I do not know whether the commission now starting all over the world expects to

invade *drugstores* or not; but I hope and pray they will tackle the swindling in patent medicines, or, say, new remedies boomed thru our daily papers like "enserol" and a hundred other things. I hope this sort of profiteering will be fully investigated and held up to the light of day. Professor Cook once told me that his old father lost his life by wasting time on a patent medicine, when beset with a trouble in his old age, that could have been readily cured by a surgical operation. Friend Cook added that, had his father only consulted *him* in regard to a trouble that is quite common to old men, he could, with the aid of a competent surgeon, have restored him almost at once; but he trusted to the patent medicine until it was too late. "With malice toward none, and charity for all," I hope and pray that the great public who read advertisements in the newspapers may soon be protected from these *fraudulent advertisers*.

MOORE HAVEN AND THE REGION ROUND ABOUT LAKE OKECHOBEE.

So much has been said and is *being* said about Moore Haven, and its wonderful soil, etc., that I have asked my friend Wheeler to give us the real facts in regard to the matter, its advantages and disadvantages, which he does in the following:

It would be hard to compare Moore Haven with any other place, for it is utterly unlike any other place in which I have ever been. While some features are very much ahead of other places, some others are very disagreeable. The beautiful palms, flowers, orange orchards, and all that which appeals to the eye, are utterly lacking here at present, except in a few cases where homes have been built long enough to get some of these things established. However, all these will come as the years go by, and many of them will grow more luxuriantly here than in the sandy regions.

As to the soil—of course, that is our long suit here, and for most crops it is *far ahead* of any other Florida soil, I have seen. At present prices, the soil is actually worth \$20.00 per ton for fertilizer, gauging the price by other fertilizer prices. It has been found tho that the so-called saw-grass land will not produce yet, for some cause not as yet ascertained. Various reasons have been advanced for this. Some think it is on account of the excessive ammonia, there being three per cent ammonia in the soil. The soil expert here is working on that theory and is turning the soil up to the depth of 18 inches and working it thoroly to get it aerated and to cause some of this excessive ammonia to evaporate. Incidentally, his operations are getting that raw peat rotted and in a condition where the various elements are accessible to the crops, which, in my opinion, is worth far more than the escape of the ammonia. The elder and custard-apple lands have the same analyses of ammonia and are producing bumper crops. Some believe (and I think the analysis of the soil bears them out in it) that the application of a small amount of phosphate would be a benefit. As it is, however, they are now growing the finest crops of corn, beans, pota-

toes, tomatoes, etc., I have ever seen in Florida. Celery and other crops which are affected by root knot, etc., do not do well here. Peach trees set out a little over a year ago will bear a big crop this year according to present indications.

Since the railroad is established here, together with the boat service, there will, no doubt, be adequate transportation facilities for all future business. People are gradually settling up the country farther down the lake, and the A. C. L. R. R. Co. promises to push their line as fast as possible down that way to take care of their products. Very few have settled as yet as far down as the Miami Canal, but the few who are there have proved conclusively that this is the most favored section around the lake, as it is just as productive as the other land, and practically "frost proof." Here around Moore Haven we have light frosts along the lake front, and some pretty heavy freezes two or three miles back.

Bees did exceedingly well here last season, and I see no reason why they should not in the years to come, as thousands of acres of peanuts are grown here every year and furnish a practically steady flow of honey from Apr. 1 until late fall. The honey is equal to our northern clover honey both as to looks and flavor.

There is plenty of work here most of the time, common labor bringing from 25 to 30 cents per hour, and skilled labor from 50 to 65 cents per hour. Land prices run mostly from \$100.00 per acre up to \$400.00 or \$500.00 per acre, according to location. Good land can be bought at \$160.00 to \$250.00 per acre within one or two miles of Moore Haven. Settlers down near the entrance of the Miami Canal have only boat service at present, and that not very satisfactory, but will, no doubt, have a railroad within a very few years. They have a very pretty lake front there and almost tropical climate. Land prices there run about the same as here at Moore Haven. Houses to rent are at a premium here and very poor houses bring very high rent. Practically every house and room in the town is taken for the next few months or until after the tomato harvest is over. There are more than 2,000 acres of tomatoes to be picked here, and only room available for about 400 people outside of the regular population, and they expect to have to import at least 1,000 to 1,500 pickers and packers. A problem the Chamber of Commerce is working on now is the housing problem. Rent runs from 8 to 10 dollars a month for very small ill-built shacks up to \$35.00 a month for just ordinary houses, not furnished.

Mosquitoes are a very great nuisance here and have been very bad the last year. There are plenty of them here now, so that it is nearly impossible to sleep except in well-screened houses. Last winter there were practically none, but the warm winter with lots of rain this year has made them very bad.

This muck land is the dirtiest place to live in I ever saw and the ammonia in it causes it to burn wherever it gets on the flesh, making it very disagreeable until one has been here a year or so and becomes used to it. Sores commonly called muck sores are quite prevalent and are extremely painful and hard to cure. I had one on my foot that my best efforts failed to cure for five months, and I only cured it when I left Moore Haven for a period and got off the muck, when it "cured" of its own accord in three days. I took ocean baths, which, I think, helped in its cure. Bugs and insects of all kinds are very obnoxious and snakes are pretty numerous.

Fishing and hunting are superb, and the man who delights in these sports will find this a veritable sportsmen's paradise.

The most serious trouble with Moore Haven so far has been the faculty its people seem to have of piling all their eggs in one basket. A year ago it

was all potatoes and cabbage when, as the markets turned out, it ought to have been tomatoes. This year it is all tomatoes, and hardly any potatoes in the country and prospects are potatoes will be high. Last year they hardly brought enough to pay the freight. This last summer everybody grew Spanish peanuts, and could hardly give them away. Chickens do finely here, also hogs and cows; and when Moore Haven people learn to do diversified farming and keep a few hens and a cow and some good breed of real hogs, they will be the most prosperous people on earth.

LEON C. WHEELER.

Moore Haven, Fla., March 20, 1919.

Since the above was in type "big things" are reported from Moore Haven. I clip below from *Florida Grover*:

Moore Haven muck is being shipped to Sebring by the carload; and, as it is equal to good fertilizer, it will be of great benefit to those who use it.

Special Notices by A. I. Root

THE NEW ANNUAL SWEET CLOVER.

Dear Mr. Root:—The seed of the annual sweet clover you sent me were sowed on the 25th of March, and by the 20th of July were about 30 inches high and in full bloom. At this date I have some matured seed on them which I will save and will have quite a plot of them next year. I have only about eight plants. S. B. MYERS.

Memphis, Tenn., Aug. 11, 1919.

MANGROVE HONEY FROM FLORIDA ONCE MORE.

Dear Mr. Root:—We are always glad to see GLEANINGS when it comes, and were especially interested in the pictures in the last number. Yours with auto load of potatoes reminded me of an experience Ruth and I had a few days ago when we were out after a load of honey to one of our Cortez yards, and got stalled in the sand with 700 pounds of honey on our trailer. By the way, that honey is on its way to our place at present, and I wish that you could sample some of the mangrove barrel, no not the barrel, but the honey. We think that it is about as fine as clover honey, altho we have always heard that mangrove honey is not good. I have instructed your people to pay you for 60 pounds of honey which I took from your hive of bees. I sent in all a little over 5,000 pounds.

My family wish to be remembered to Mrs. Root. Trust we shall soon have you both back with us again, as we miss you much in church and S. S. Sincerely yours, J. B. NOTESTEIN.

Bradentown, Fla., Aug. 6, 1917.

Our oldest readers will remember that it was the mangrove that gave the tremendous yield of honey before the great frost of 1895. The trees were so much injured that they are only now beginning to "catch up" after all these years. My recollection is that the mangrove honey had a beautiful flavor all its own, in times past. I might add that my one colony of bees that *once more* gave the 60 pounds sent out a big swarm (which "absconded") just before we left about the first of May.

SUNFLOWER SEED. THE LOCALITY THAT GROWS 1275 TONS. SEE P. 538, AUG. NUMBER.

The following from Burbank will, I am sure, be read with great interest.

My Esteemed Friend Root:—Long have I known you and of you thru your writings and magazines, etc. In fact, I think you are the one who encouraged me to start beekeeping in New England long ago.

The name of the town where so much sunflower seed is raised is Manteca, San Joaquin Co., southern California. Probably the postmaster of that place could inform you all about it. I have just had a request from a large Eastern firm for two or three carloads of sunflower seed which I cannot fill; and by the way, I have now a compact-growing variety of my snow-white seeded sunflower, absolutely true from seed, which grows only three feet in height, having enormous blossoms and as much feeding value in foliage as the older tall kinds because the plant makes a thick growth of leaves and stalk from the ground up. LUTHER BURBANK.

Santa Rosa, Calif., July 22, 1919.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

FOR SALE.—90 cases new crop clover honey in new 60-lb. cans, two in case, 25c per lb., f. o. b. here. W. B. Crane, Ottawa, Ohio.

FOR SALE.—Well-ripened clover honey in 60-lb. cans, one or two to case.

F. W. Lesser, R. D. No. 3, E. Syracuse, N. Y.

FOR SALE.—White-clover extracted honey in 60-lb. cans, 2 per case.

Noah Bordner, Holgate, Ohio.

FOR SALE.—Clover, amber, and buckwheat honey in 60-lb. cans, 2 per case.

H. B. Gable, Romulus, N. Y.

FOR SALE.—New crop of Bee Dell honey of the finest quality, put up in new 60-lb. cans.

O. W. Bedell, Earlville, N. Y.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—New crop clover extracted honey, two 60-lb. cans to case, 25c per lb., f. o. b., Weston.

A. S. Tedman, Weston, Mich.

FOR SALE.—New clover honey in new 60-lb. cans, also buckwheat in kegs and cans. Write for prices.

E. L. Lane, Trumansburg, N. Y.

FOR SALE.—Finest Michigan raspberry, basswood, and clover comb and extracted honey. Unexcelled for quality and flavor. Write for prices.

W. A. Latshaw Co., Clarion, Mich.

FOR SALE.—10,000 lbs. very fine flavor white honey in new 32-gal. oak barrels, 20c per pound f. o. b. Jacksonville, Fla. Sample 5c.

A. F. Brown, 29 Cypress St., Daytona, Fla.

FOR SALE.—Our new crop of white-clover honey is now ready for market. It is put up in new 60-lb. tin cans, two to the case. The crop is short this season so do not be disappointed by not ordering early. Sample 25c.

D. R. Townsend, Northstar, Mich.

E. D. Townsend & Sons, Northstar, Michigan, offer their 1919 crop of white clover and white clover and basswood blend of extracted honey for sale. This crop (it's only a half crop this year) was stored in nice white clean extracting combs that had NEVER had a particle of brood hatched from them. We had more of those extracting combs than we could possibly use this year, and we piled them on the swarms as needed. NOT A SINGLE OUNCE OF HONEY WAS EXTRACTED UNTIL SOME TIME AFTER THE CLOSE OF THE WHITE HONEY FLOW; consequently, NONE could be produced that will excel this crop of honey. Of course, it is put up in NEW 60-pound net tin cans, and they are cased up for shipment, two in a case. If you are one of those who buy "just ordinary" honey, at the lowest price possible, kindly do not write us about this lot of honey; but if you can and have customers who will want the very best and are willing to pay the price, order a small shipment of this fine honey as a sample, then you will know just what our honey is and whether it is worth the little extra price we ask for it or not. We quote you this fine honey, either clear clover, or that containing about 5 per cent of basswood—just enough basswood to give it that exquisite flavor

relished by so many, at only 25c per pound on car here at Northstar. Kindly address, with remittance, E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Comb and extracted clover honey. E. B. Brown, White Plains, N. Y., Box 323.

WANTED.—Comb and extracted honey, also beeswax. Send samples. C. S. Fryer, 386 Halsey St., Portland, Ore.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED.—Comb and extracted honey, car lots and less. Mail samples, quantity, and price. W. Morris, Yonkers, N. Y.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations.

M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.

Hoffman & Hauck, Inc., Woodhaven, N. Y.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston.

M. V. Facey, Preston, Minn.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WE BUY HONEY AND BEESWAX.—Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section, and sections to a case. Extracted honey, quantity, how packed, and send samples. Charles Israel Bros. Co., 486 Canal St., New York, N. Y.

FOR SALE

HONEY LABELS.—Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—Novice extractor in good order, \$15.00. M. D. Smith, Preston, Iowa.

SEND TODAY for samples of latest honey labels. Liberty Pub. Co., Sta. D, Box 4E, Cleveland, Ohio.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

FOR SALE.—Pan Handle beekeepers, please note that you can buy Root bee supplies "next door." Will C. Griffith & Sons, Elm Grove, W. Va.

FOR SALE.—Root's 10-inch brood-foundation mill, vat, and boards, \$12.00. Worth much more. Grady Slone, Buckholts, Texas.

FOR SALE.—Second-hand honey tins, two per case, 75c per case. Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—One 5x8 camera, 5D plate holders carrying case with good lens, \$5.00. M. D. Smith, Preston, Iowa.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.

R. & E. C. Porter, Lewistown, Ills.

FOR SALE.—Two one-story one-frame observation hives. Good as new, \$5.00 each.
E. A. Simmons, Greenville, Ala.

FOR SALE.—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60¢ per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weller & Co., 2146 Central Ave., Cincinnati, O.

CANADIAN BEE SUPPLY & HONEY CO.,
144-73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Extractor, Root two-frame reversible for any frame not larger than Jumbo. Has never been used. Will accept best offer. Also A B C and X Y Z of Bee Culture, Dr. Miller's "Fifty Years Among the Bees," and "Beekeeping," by E. F. Phillips. L. W. Barnes, Durham, N. C.

FOR SALE.—Two brood-comb foundation mills with 8- and 10-inch rollers, and one with 6-inch rollers for section boxes, can be run by power, all in good condition. 30-section super for 3 3/8 x 5 sections, 500 sections, 500 old-style Hoffman frames, one Remington typewriter, each sold for best reasonable offer. M. E. Ballard, Roxbury, N. Y.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Bee-ware. Our new price list will interest you. We pay 38¢ in cash and 40¢ in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

WANTS AND EXCHANGE

A \$60.00 new Conley post card plate camera outfit complete. Will trade for bee supplies.
F. W. Carritt, Soldier, Iowa.

TO TRADE.—New phonograph and records for either comb or strained honey.
A. M. Corbus, Ottawa, Ills.

WANTED.—Second-hand honey extractor. State make and price.
John Stevenson, Richmond, S. I., N. Y.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax.
Superior Honey Co., Ogden, Utah.

WANTED.—50 colonies of bees in regular 10-frame hives, also BEST grade white or sweet-clover honey. Sample and price.
George Herrick, 11225 Vernon Ave., Chicago, Ill.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., Pearl & Walnut Sts., Cincinnati, O.

WANTED.—Honey extractor in exchange for four vols. Encyclopedia of American Agriculture containing up-to-date data on farms, grubs, animals, and production. These books are brand new costing 25.00. Conrad Schmidgall, Elmhurst, Ills.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 38¢ cash, 40¢ trade. We will pay 1 and 2¢ extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival.
The A. I. Root Co., Medina, Ohio.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slungum. Send for our terms and our new 1919 catalog. We will buy your share of the wax for cash or will work it into foundation for you.
Dadant & Son, Hamilton, Illinois.

REAL ESTATE

FOR SALE.—A fine Florida farm of 20 acres, good six-room house and barn. Ideal place for fruit, chickens, and bees. For particulars write C. Mack, Mannville, R. F. D. No. 1, Fla.

FOR SALE.—My home and 17 acres of land, including 250 colonies of Italian bees fully equipped for extracted honey.
P. W. Stahlman, West Berne, N. Y.

FOR SALE.—An apiary with extracting-house, extractor, Barnes circular saw, and the location having 100-ft. frontage on the Gulf of Mexico where fishing gives good income as a side line.
E. Paillard, Osprey, Fla.

FOR SALE.—South Florida 60-acre farm and groveland. 12 acres cleared, 5 1/2 acres grove, part bearing, 2 1/2 acres sugar cane. With or without all crops, livestock, and tools. Also good bee range. Reason for selling, poor health.
Otto Malakowsky, La Belle, Fla.

FOR SALE.—My home and apiary location. 40 acres all improved land, 9-room house with bee cellar, 30 by 40 basement barn, hen-house, shop, and honey-house. Best of water convenient to house. Best of location for the bee business, 1 mile from town on gravel road. Reason for selling—read in ad in Aug. Gleanings. 30 colonies of bees left. Price \$4,500.
E. A. Leffingwell, Allen, Hillsdale Co., Mich.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 84 Cortlandt St., New York.

Hardy Italian queens; one, \$1.00; 10, \$8.00.
W. G. Lauver, Middletown, Pa.

Golden Italian queens, untested, \$1.00 each, six for \$5.00. E. A. Simmons, Greenville, Ala.

FOR SALE.—300 colonies Italian bees, cash or trade. Fred Alger, Waukau, Wis.

PHELPS' GOLDEN QUEENS will please you. Mated, \$2.00. Try one and you will be convinced.
C. W. Phelps & Son, Binghamton, N. Y.

THREE-BAND Italians only. Untested queens, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00. H. G. Dunn, The Willows, San Jose, Calif.

"She suits me" Italian queens, \$1.15 each from May 15th to Oct. 15th; 10 or more, \$1.00 each.
Allen Latham, Norwichtown, Conn.

FOR SALE.—Indianola Apiary offers Italian bees and queens; tested, \$1.50; untested, \$1.00.
J. W. Sherman, Valdosta, Ga.

FOR SALE.—Golden Italian queens, untested, 85¢; two, \$1.50.
J. F. Michael, Winchester, Ind.

FOR SALE.—20 colonies bees, 10-frame, full equipment.
J. Stefan, 1225 N. Leithgow St., Philadelphia, Pa.

When it's **GOLDEN** it's Phelps'. Try one and be convinced. Virgins, \$1.00; mated, \$2.00.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Three-banded Italian queens, untested only, one, \$1.50; six, \$8.50; dozen, \$16.00.
P. C. Chadwick, 725 E. High Ave., Redlands, Calif.

ITALIAN QUEENS.—Northern-bred, three-banded, highest grade, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price \$1.00 each.
J. H. Haughey, Berrien Springs, Mich.

FOR SALE.—50 colonies of bees, extractor equipment, 10-frame with supers, \$750.

G. Pillman, Centaur, Mo.

FOR SALE.—Finest three-banded Italian queens, 1 for \$1.25; 6 for \$7.00.

J. W. Romberger, 3113 Locust St., St. Joseph, Mo.

Leather-colored Italian queens, tested, June 1st, \$1.50, untested, \$1.25—\$13.00 a dozen.

A. W. Yates, 3 Chapman St., Hartford, Ct.

FOR SALE.—Three-banded Italian queens, untested, \$1.00; \$10 a dozen. J. A. Jones & Sons, Montgomery, Ala., R. F. D. No. 1, Box 11-A.

FOR SALE.—Business-first queens Laying untested queens, \$1.00 each; select untested, \$1.25; tested queens, \$2.00; select tested, \$2.50. Price list for asking. M. F. Perry, Bradentown, Fla.

GOLDENS THAT ARE TRUE TO NAME. Untested queens, each, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00.

Garden City Apiaries, San Jose, Calif.

FOR SALE.—150 colonies of bees up to date. Best honey-producing location in the State. First-class outfit for comb and extracted honey, at reasonable price. Wm. A. Voigt, Nyssa, Oregon.

FOR SALE.—Bright Italian queens at \$1.00 each, \$10.00 per doz. Ready April 10. Safe arrival guaranteed.

T. J. Talley, R. D. No. 4, Greenville, Ala.

FOR SALE.—September first 200 colonies of bees, 8-frame hives, full sheets wired foundation, \$6.00 per colony.

L. R. Dockery, Box No. 38, Hagerman, Idaho.

FOR SALE.—Three-band Italian queens. Untested queen, \$1.00; six, \$5.50; twelve, \$10.00. Tested queens, \$2.00 each.

Robert B. Spicer, Wharton, N. J.

FOR SALE.—500 colonies of bees in 8-frame hives, empty hives, extracting combs and other supplies. Prices reasonable.

O. D. Bobb, 811 O'Farrell St., Boise, Idaho.

FOR SALE.—Three-band Italian queens ready June 1. Untested, each, \$1.00; 12, \$10.00; 100, \$80.00. Satisfaction and safe arrival guaranteed.

A. E. Crandall & Sons, Berlin, Conn.

FOR SALE.—150 colonies good Italian bees, in 8-frame hives, \$8.00 each. Also hives, supers, etc., at ½ price.

Joseph Cooke, Rt. 4, Watertown, N. Y.

FOR SALE.—Italian queens, golden, and three-banded, bred from best selected stock. Untested, each, \$1.00; 6, \$5.00; 12, \$10.00; selected untested, \$1.50 each. Satisfaction guaranteed.

G. H. Merrill, Liberty, S. C.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GEN- TLE. Virgins, \$1.00; mated, \$2.00.

C. W. Phelps & Son, Binghamton, N. Y.

WARRANTED QUEENS.—Dr. Miller's strain, \$1.00 each; \$10.00 per doz. Tested, \$1.50 each; \$15.00 per doz. Safe arrival and satisfaction guaranteed.

Geo. A. Hummer & Sons, Prairie Point, Miss.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, \$1.25; 12 queens, \$14.00. One pound of bees with queen, postpaid, \$6.00. Safe arrival and satisfaction guaranteed.

M. Bates, Greenville, R. D. No. 4, Ala.

TESTED QUEENS.—I am now doing my annual requeening. I am selecting the best of the queens and am offering them for sale at \$2.50 each. Breeding queens, \$5.00 each. Those queens are descendants from the celebrated J. P. Moore strain of leather-colored Italians. Untested queens of same strain, \$1.50 each. Safe arrival guaranteed.

Elmer Hutchinson, Lake City, Mich.

QUEENS AND BEES.—This fall is the proper time to replace all queens two years old as well as the failing ones. Circular free. See large ad elsewhere. Nueces County Apiaries, E. B. Ault, Prop., Calallen, Texas.

BEGINNERS' SPECIAL.—Two colonies Italian bees in 1½-story 10-frame painted hives. New gloves, smoker, and bee veil for \$25.00. Limited supply. Order at once.

J. W. Harrison, White Pigeon, Mich.

FOR SALE.—Italian queens from best, disease-resisting stock, mailed as soon as hatched. Directions for introducing with every order. Price, April to October, in large or small lots, 60c each.

James McKee, Riverside, Calif.

FOR SALE.—3-band Italian queens from best honey-gathering strains obtainable. Untested queens, \$1.25 each; 6, \$6.50; 12, \$11. Satisfaction guaranteed.

W. T. Perdue, Fort Deposit, R. D. No. 1, Ala.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May and June, untested, each, \$2.00; six, \$7.50; doz. \$14.00; tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnetts, Va.

FOR SALE.—100 colonies of bees in 10-frame Hoffman nearly new hives, well painted, on full sheets wired foundation; requeening now; 25 acres of land and good buildings. Good location right in the village of Bagnall, with stock on place if wanted.

C. J. Freeman, Bagnall, Mich.

NORTH CAROLINA BRED Italian queens of Dr. C. C. Miller's strain of three-band Italian bees, gentle and good honey-gatherers. July 1 until Oct. 1, untested, \$1.10 each; \$11.00 per dozen; tested, \$1.60 each; select tested, \$2.25 each. Safe arrival and satisfaction guaranteed.

L. Parker, Benson, R. D. No. 2, N. C.

QUEENS, QUEENS. We are now up with orders, are mailing queens day after receipt of rush orders. No disease. Satisfaction guaranteed. Best Italian untested queens, 1 for \$1.00, 12 for \$11.50, 50 or more 90c each. See illustrated ad, page 623. I will care for your interest.

W. D. Achord, Pike Road, Ala.

FOR SALE.—About 120 colonies and nuclei of Italian bees and equipment for comb and extracted honey. All in first-class shape. One outyard, honey house, etc. Reason for selling—poor health and must leave this climate. Must sell by Oct. 1st. Write for particulars.

Edw. A. Reddout, Lysander, N. Y.

FOR SALE.—Queens of Moore's strain, leather-colored, three-banded Italians. I am doing my annual requeening and can furnish select tested queens one and two years old, at \$2.00 each. Also can furnish untested queens at \$1.50 each; \$8.00 for 6; \$15.00 per dozen. All orders filled promptly.

John Hutchinson, Fife Lake, R. D. No. 2, Mich.

PURE ITALIAN QUEENS, Doolittle and Moore choice stock, also Goldens that are GOLDEN. Every queen mated and LAYING before being caged. Select untested, \$1.50 each. Select tested, \$2.50. For large lots write for price. Safe arrival and satisfaction I guarantee.

J. E. Wing, 155 Schiele Ave., San Jose, Calif.

HOLLOPETER'S Italian queens ready in June, untested, one, \$1.75; six, \$9.00; July, one, \$1.50; dozen, \$15.00. Quantity price on application, delivery after July 10. These prices guarantee you safe arrival of really high-grade Italian stock, more efficient service and wings clipped when desired.

J. B. Hollopeter, Rockton, Pa.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.

H. G. Quirin, Bellevue, Ohio.

FOR SALE.—Extra fine Dr. C. C. Miller queens. Untested \$1.25 each, 6 for \$6.50; 12 for \$12.00; 100 for \$90.00. With 400 to draw from I will be filling orders by return mail. Curd Walker, Queen-breeder, Jellico, R. D. No. 1, box 18, Tenn.

SPECIAL NOTICE TO BEEKEEPERS.—Now is the time to know from whom you are going to get your bees for next season. Am booking orders now for May and June deliveries. Write for further information.

Oscar Mayeux, Box No. 15, Hamburg, La.

FOR SALE.—One full colony excellent-working leather-covered Italians, easy to handle, in a single-story dove-tailed hive, with this season's queen, \$16.00; two, \$30.00; five, \$72; ten \$140. Shipped at once on receipt of P. O. Money Order. Natural raised queens, 60 to 90 days old, at \$1.50 each, mailed Sept. 20th when we unite severely for fall flow. No disease here. Samuel Cushman, 4209 Ridgewood Ave., West Arlington, Md.

HELP WANTED

WANTED.—One experienced man, and students as helpers in our large bee business. Good chance to learn. Modern equipment and outfit, including auto truck, located near summer resorts. Write, giving age, height, weight, experience, reference, and wages wanted.

W. A. Latshaw Co., Clarion, Mich.

HELP WANTED.—A competent beekeeper and gardener to handle about 100 colonies of bees and three-acre market garden on shares. Modern equipment and tools furnished by us. Located on trolley line and have established local market at big prices. Single or married man, wife to help in house. We furnish employment in mill during winter and whenever not engaged on garden or bees. When writing give your experience and qualifications in full. Falls Roller Mills Co., Sheboygan, Wisc.

SITUATIONS WANTED

SITUATION WANTED.—By young married man, having experience with bees, poultry, and fruit. Best references.

Louis Gordon, Ashland, N. H.

MISCELLANEOUS.

FOR SALE.—No more ants where tansy grows. Get it started this fall. 3 roots 25c.

M. D. Smith, Preston, Iowa.

Guinea Pigs. Young stock for sale, females, \$1.50; males, \$1.00. Pleasant Hill Caviary, 1629 E. Florida St., Springfield, Mo.

PRINTING SPECIAL.—100 letterheads, 100 billheads, 100 cards, 100 envelopes, \$1.90. Send for samples. Hawthorne Press, Yonkers, N. Y.

FOR SALE.—Guinea pigs, breeding stock, female, \$2.25; male, \$1.75. Also young ones. Belgian hares, breeding stock, males, \$6.00; females, \$7.00. Also young ones.

Pearl Barton, Barrington, Ills.

WHITE WYANDOTTES.—100 choice cockerels, free range, exhibition and trap-nested stock, Regal strain. Also 200 Barred Rock hens, pullets and cockerels, Thompson strain.

Clifton Smith, Salesville, Ohio.

EVERY BEEKEEPER should have his own printed stationery. We specialize in this line. 150 letterheads, 100 envelopes, 100 billheads, printed in two colors, ALL for \$1.90. This special offer for September only. Labels that will sell your honey, 60c per 1,000 up. Samples free.

Hawthorne Press, Yonkers, N. Y.

THREE REASONS WHY

I.

Council Bluffs is centrally located and we can save you time and money in freight hauls.

II.

We are manufacturing **only** the highest class of goods. Kretchmer's supplies are made right.

III.

Our aim is to give you prompt and efficient service. One reason why the Beekeeper says, "Try Kretchmer's."

You Will Want Kretchmer's

And the reasons one beekeeper writes: "The goods came promptly, and in good order. They assembled in fine style, too. I am well pleased."



The KRETCHMER
Manufacturing Co.
COUNCIL BLUFFS, IOWA

Talks to Beginners.—Continued from Page 600.

over the tops of the frames, and the pail and the top of the brood-chamber warmly covered with a piece of canvas or burlap to retain the heat so that the syrup will be taken readily by the bees. The inside and outside covers should, of course, be placed over the super.

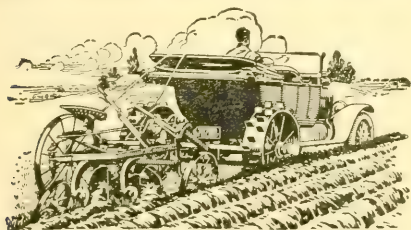
Some use an escape-board from which the escape has been removed, placing the board between the brood-chamber and empty super, and inverting the pail of syrup over the hole in the board. Strong colonies will sometimes take the contents of one of these ten-pound pails in a day. If a colony is unusually slow in taking the syrup, the process may be hurried somewhat by re-warming the syrup.

Other Kinds of Packing.

The preceding applies to beekeepers in the North who have double-walled hives and intend wintering outdoors. There may be some, however, who may prefer to winter in a different way, and these should be making their plans accordingly. In localities where the average winter temperature is below 15 degrees F., beekeepers who have good stores and dry, well-ventilated cellars that may be darkened and left at an even temperature somewhere near 47 degrees, may winter inside to advantage. In that case no more than 20 pounds of winter stores may be needed.

Those in the North who have single-walled hives and intend wintering outdoors will need to construct a suitable packing case. These cases should be rainproof, should surround the hive, and allow four to six or more inches of packing between the case and the hive. There should be packing at the top and sides, and some prefer it also at the bottom.

Even in the Southern States some packing is a decided advantage, leaving the colonies in a much stronger condition in the spring. The protection may be in the form of light packing cases, but even wrappings of paper will be quite worth while.



Make a Tractor of Your Car

Use it for farm work. Pullford catalog shows how to make a practical tractor out of Ford and other cars.

Write for Catalog

Pullford Co., Box 23 C Quincy, Ill.

FLOUR IS HIGH

Why not live better and save money, too? Grind your wheat into Best Whole Wheat or Graham Flour. Your doctor knows how healthy these are. Make the BEST Corn Meal, the old-fashioned sort you can't buy at any price nowadays.

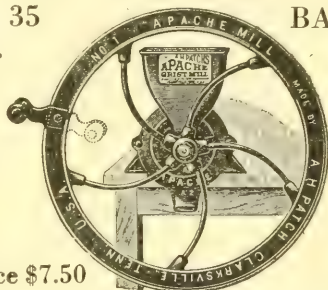
Do all sorts of fine and coarse grinding with an

APACHE MILL

Wt. 35
lbs.

BALL

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Price \$7.50

This Mill Makes Best Corn Meal, Graham Flour, Rye Flour, Chops, Hominy, Cracks Peas, Grinds Coffee, Spices, etc. Perfect adjustment for coarse or fine work. Will send Mill prepaid by Express **\$7.50**

APACHE GRIST MILL—Largest capacity, fastest grinding, easiest turning handmill. Does more, lasts longer.

A. H. Patch, Inc., Clarksville, Tenn.

The Blackhawk Corn Sheller Inventor

Invented 1885

Tin Containers

A Complete Line. Your Orders Solicited for

Friction-Top Cans and Pails

Five-gallon Square Cans
with Screw or Solder Cap

Packers' Cans
Open Top or Hole and Cap Styles

Wax Sealing Preserving Cans

Unexcelled manufacturing and shipping facilities.

W. W. Boyer & Co., Inc.
Baltimore, Maryland

Queens--Rhode Island--Queens

Italian Northern-bred queens. Very gentle and hardy. Great workers. Untested, \$1; 6 for \$5. Circular on application. Queens delivered after June 1.

O. E. Tulip, Arlington, Rhode Island
56 Lawrence Street

Leininger's Strain of Italians

have stood the test for 35 years. We will offer queens for sale from this famous strain, beginning June, as follows: One untested queen, \$1.50; 6, \$8.00. One tested queen, \$2.00; 6, \$11.00. Select breeders, \$15.00 each.

Fred Leininger & Son, Delphos, O.

MOORE'S STRAIN OF ITALIANS

Noted for Honey Gathering,
Hardiness, and Gentleness

Untested queens - - - \$1.50; 6, \$8.00; 12, \$15.00

Select Untested - - - 2.00; 6, 10.00; 12, 19.00

Safe arrival and satisfaction guaranteed.

I intended to run my apiaries for honey this year; but so many of my customers say that they must have "Moore" queens, I am devoting part of my home apiary to queen-rearing.

J. P. MOORE, MORGAN, KY.

Mott's Northern-bred Italian Queens

are hardy, prolific, gentle, and hustlers, therefore resist well disease.

Untested, \$1.00 each; \$10.00 for 12.

Select Tested, \$2.00 each.

Virgins, 50c each.

Plans "How to Introduce Queens," and "Increase," 25c.

E. E. Mott, Glenwood, Mich.

Ontario Bred Italian Queens

NOW IS THE TIME

TO REPLACE THOSE OLD BLACK QUEENS

with young ones of a gentle strain. Great honey gatherers and resistant to European Foul Brood.

Select Untested - \$1.25 each; \$13.00 dozen

Untested - - - \$1.00 each; \$10.00 dozen

RUMFORD & FRETZ -:- -:- FOREST, ONTARIO

**BANKING
BY MAIL
AT 4%**

WRITE to day for our booklet "Banking by Mail" and get the facts about our system of receiving deposits by mail from people in all parts of the world.

Four per cent compound interest paid on deposits of any amount from one dollar upwards.

THE SAVINGS DEPOSIT BANK CO.

A.T. SPITZER, Pres.
E.R. ROOT, Vice Pres. E.B. SPITZER, Cash.

MEDINA, OHIO

Beeswax Wanted

In big and small shipments to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1918. We are paying higher prices than ever for wax. - We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck

The Comb-foundation Specialist
Augusta, Kansas

Established 1899

\$30,000 WORTH OF Bee Supplies



All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

*Will Take Beeswax in Trade at
Highest Market Price.*

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

PATENTS Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.
Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

"Special Crops" A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. \$1.00 per year. Sample copy 10c. Address
Special Crops, Box G, Skaneateles, New York

Complete Line of Beekeepers' Supplies

Catalog on Request

F. Coombs & Sons, Brattleboro, Vt.

"Best" Hand Lantern
A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. **THE BEST LIGHT CO.**
306 E. 5th St., Canton, O.

BEE - SUPPLIES FALCON LINE

We carry the largest supply
in our section. Send us
your inquiries.

Lowest Prices, Quality Considered

C. C. Clemons Bee Supply Co.
128 Grand Ave. KANSAS CITY, MO.



Established 1885
It will pay you to get our catalog and order early.

Beekeepers' Supplies

The Kind You Want and The Kind
That Bees Need.

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

Safe and Pays 7 per cent

BEEKEEPERS: We have said to you before that we wish that every dollar of our new issue of 7 per cent preferred stock could be owned by our beekeeping friends.

Already a very considerable number of beekeepers have purchased it in large and small amounts.

This stock is guarded by every possible safety for the investor. We stand ready to tell you all about it, and our financial position. Write us for information.

The A. I. Root Company, Medina, Ohio

J. T. Calvert, Treas.

BARKER
WEEDER, MULCHER
AND
CULTIVATOR



Weeds and Mulches In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.*

A boy can use it. Five sizes. Send today for book, free and postpaid.

**BARKER
MFG. CO.
Dept. 10**

DAVID CITY, NEB.

Gentlemen.—Send me postpaid your free book and Factory-to-User Offer.

BARKER MANUFACTURING CO.

Dept. 10

David City, Nebraska

Name _____

State _____

Town _____

R. R. No. _____ Box _____

TEXAS BRED QUEENS

The Success of Beekeeping Depends on Good Young Queens

We will have several thousands for sale this fall—also booking orders for spring delivery. We will guarantee shipments to be made on time. Get our *Free Circular*. September and October is considered the best time for all southern beekeepers to requeen.

These prices are for this year;
free circular gives prices for next.
Prices of regular Nuclei, also
Nuclei on *Aluminum Combs*
given in free circular.

	1	6	12	50
Untested	\$1.25	\$ 6.50	\$11.50	\$40.00
Select untested	1.50	7.50	13.50	48.00
Tested	2.00	10.50	18.50	
Select tested	2.75	15.00	27.00	

One-pound package of bees	\$2.40—25 or more	\$2.16 each
Two-pound package of bees	1.25—25 or more	3.83 each
Three-pound package of bees	6.25—25 or more	5.62 each

We have shipped thousands of pounds for several years all over the U. S. A. and Canada.
Add price of queen when ordering bees.

NUECES COUNTY APIARIES :- CALLEN, TEXAS

E. B. AULT, Prop.

“falcon”

Your Duty—Do You Know It?

It is to get ready for the coming season and be ready for the first honey flow. This will net you profits. Prepare your bees for a big year and take no chances. Get the best to do with and have the best results.

Our Duty—Do We Know It?

We get the beekeepers ready for the big season. Supply them with the best of everything with which to work and get the best results. Send us a list of your requirements for quotation. TO DELAY MEANS LOSS TO YOU. “Falcon” service cannot be beat. Catalog and Simplified Beekeeping on request.

W. T. Falconer Manufacturing Company

Falconer, New York

“where the best bee hives come from.”

“falcon”

IMPORTANT ANNOUNCEMENT

Our New Steam Wax Rendering Department will be ready for business by September 8th. We will render your old combs and cappings at the regular terms which are as follows:

TERMS FOR RENDERING EITHER FOR CASH OR ON SHARES.

	Cash Terms.	Share Terms.	Our Share
	Per Lb.	Your Share.	
On 100 lbs. or more beeswax secured	\$0.07	80 per cent	20 per cent
On 25 to 100 lbs. beeswax secured	.09	75 per cent	25 per cent
On less than 25 lbs. beeswax secured	.14	60 per cent	40 per cent
	Cappings.		
On 100 lbs. or more beeswax secured	.04	90 per cent	10 per cent
On 25 to 100 lbs. beeswax secured	.07	80 per cent	20 per cent
On less than 25 lbs. beeswax secured	.09	75 per cent	25 per cent

Freight or express charges will be charged to the shipper. For your share of the beeswax we will pay you our best cash price, quoted on application any time, or our trade price to apply on bee supplies you may need. Should you be in need of comb foundation your share of the beeswax may be worked into foundation at our regular working prices. Send for special price list. Also, we expect to begin handling honey by October 1st, as our new equipment will be ready by this time. While at the New York State Fair arrange to make our Exhibit your Headquarters as all Beekeepers aim to do. Wednesday and Thursday are Beekeepers' special days.

The Deroy Taylor Co., :- :- Newark, Wayne Co., New York

SEASONABLE SUGGESTIONS

Friction-top Pails

5- and 10-pound sizes

Five-gallon Cans

Of extra - heavy tin
plate and 3-inch screw
cap. Recommended
by State Apiarist B. F.
Kindig to Beekeep-
ers' Association

Shipping Cases

The Root Quality
kind for comb honey

Sections & Comb Foundation

to finish the season

M. H. Hunt & Son

510 North Cedar St.
Lansing, Mich.

MASON BEE SUPPLY COMPANY**MECHANIC FALLS, MAINE**From 1897 to 1919 the Northeastern
Branch of The A. I. Root Company

Prompt and Efficient Service **BECAUSE—Only Root's Goods are sold.**
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway.
If you have not received 1919 catalog, send name at once.

**Distributors Root's Goods
FOR PENNSYLVANIA**Send for new special catalog featuring the "Simplex"
Super, and giving instructions to beginners**Prothero, Bailey & Goodwin DUBOIS
PA.**

BEES We furnish full colonies of Italian bees in double-walled hives, single-walled hives, and shipping boxes; 3-frame nucleus colonies, and bees by the pound. Tested Italian queen, \$2.00; untested, \$1.50.

I. J. STRINGHAM, GLEN COVE, N. Y.

**WANTED—TO PURCHASE COLORADO
Section and Bulk Comb Honey**
direct from producers in car lots and less than car lots.
Please let us know what you have and submit sample,
full description as to weight, and your lowest price to

J. E. HARRIS, MORRISTOWN, TENN.
or our western representative, **Mr. R. B. McGuffin,**
1165 Emerson St., Denver, Colo.

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1919 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.


The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. **AGENTS WANTED EVERYWHERE.**
THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

LOCKHART'S SILVER - GRAY CARNIOLANS

"LINE BRED" for the past 33 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE combs, and use mostly wax in place of propolis. Prices of queens for 1919: Untested queen, \$1.25, six \$6.00, dozen \$11.00. Select untested queen \$1.50, six \$8.00, dozen \$15.00. Tested \$2.00. Breeders \$3.00, \$5.00, \$10.00. Safe arrival guaranteed in United States and Canada. No foul brood here.

F. A. LOCKHART & COMPANY . . . LAKE GEORGE, NEW YORK

**Southern
Head-
quarters
for
Italian
Queens**



We have increased our queen yard 25 per cent to supply increasing demands for our Italian queens.

	Before June 15			After June 15		
	1	12	50 or more	1	12	50 or more
Untested Italian queens.....	\$1.25	\$13.25	\$1.00 each	\$1.00	\$11.50	\$0.90 each
Tested Italian queens.....	2.00	23.00		1.50	15.00	
Breeders, Italian queens.....	5.00	each, any time.				

We are willing to replace any untested queen which might prove to be mismated. We guarantee safe arrival on all queens we send out. We have never had any foul brood in or near any of our yards. Because we spare neither labor nor expense to produce the best queens for you is why we can not sell cheaper. Let us supply your needs.

W. D. ACHORD, Pike Road, Alabama.

QUEENS

We guarantee safety from all foul brood disease, because there is not now and never has been any foul brood in our part of the country. Our bees and queens are absolutely free from it. Remember that

LAST YEAR WE REARED 12,348 QUEENS

which we believe to be the world's record among queen-breeders. We could do this only because of the reputation for quality and service that we have established among beekeepers far and wide.

PRICE OF QUEENS.

After June 15th	1	12	50 or more
Untested	\$1.00	\$11.00	\$.90
Select Untested	1.50	15.00	1.30
Tested	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

Prices of Dr. Miller's Queens

After June 15th	1	12	50 or more
Untested	\$1.25	\$13.25	\$1.10
Tested	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

We have a full line of Root's goods and guarantee to fill all orders within three days after receipt and all mail orders the same day received. Try us on sections, foundation, smokers and all small orders by mail. A full line manufactured from Cypress, the Wood Eternal, which we guarantee to please you. Solid one-piece covers made from the best wood in the world, without crack or crevice, at the price of other wood covers. Beeswax wanted.

SEND FOR CATALOG

The PENN COMPANY
PENN, MISSISSIPPI

The New Root-Weed Comb Foundation.....

More than 40 years ago, A. I. Root, while turning a clothes wringer, conceived the idea of a comb-foundation "mill," making practical the production of real comb foundation.

About 25 years ago A. I. Root and his organization encouraged, assisted, and financed the inventor of the celebrated Weed Process of forming strong, tough sheets of wax, as different from the old process of "dipped" sheets as the finest steel is different from pig iron.

And now, in the semi-centennial year of the Root organization comes THE MOST IMPORTANT ANNOUNCEMENT OF ALL.

After years of experimenting we are exceedingly pleased to announce to our many friends and customers that we will in the near future be able to supply a comb foundation made

Nearer to Nature

A new process of ROOT WEED COMB FOUNDATION, which, we believe, is one of the greatest improvements in comb-foundation making that has ever been made. Our new process has to do with the refining of the wax and with the milling, resulting in a product more nearly resembling the natural mid-rib of the comb than any other foundation.

Before placing your orders for next season's supply write for further particulars, sample, and prices after Oct. 1.

Our new process will be furnished only by ourselves and our authorized dealers and representatives.

Early Order Discounts

Our early order discounts, with cash, are as follows: For September, 6 per cent; for October, 5 per cent; for November, 4 per cent; for December, 3 per cent.

The A. I. Root Co., Medina, Ohio

A BIG DISCOUNT

Mark off 6 per cent if you send in your orders in September. This is your early order cash discount effective September 1. Our prices for Lewis Beeware for 1920 are now out. You can stock up with reserve supplies at a low cost. Labor conditions are unsettled and transportation is slow. Present manufacturing costs preclude lower retail prices. It is good beekeeping to prepare for emergencies in time. So get out your "BEEWARE" catalog and send your order now.

Every beekeeper who has honey to ship should get our quotations on shipping cases before buying. It will mean a big saving to you.

"HOW TO WINTER BEES OUTDOORS."

This is the title of a new Lewis "How" booklet priced at 5 cents. Every beekeeper should read it. If you order one, our 1920 catalog of bee information will be sent you. There are 10 other "How" booklets on as many subjects. Our "Pocket Library" of 11 booklets at 5c each.

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For



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It is a guarantee of the finest bee supplies. There is a distributor somewhere near you.

G. B. LEWIS CO., WATERTOWN, WIS.

Gleanings in Bee Culture

Vol. XLVII

OCTOBER 1919

No. 10



Vista at Basswood Apiary

We are always in the market for HONEY and BEESWAX.
Do not sell until you have seen us.
We will pay you spot cash for any thing you sell us.
Get our prices on cans and cases.

Los Angeles Honey Co.

633 Central Bldg., Sixth and Main Sts.
Los Angeles, California
Telephones: Home 10419, Main 5606

Buy Your Hives Where the Lumber Grows

Made of California Pine and Redwood. Send for our new 36-page catalog. We manufacture

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We will mail you free samples on request. Our prices and quality will please you. We have installed a steam wax-press for the purpose of handling your slumgum to the best advantage.

Miller Box Manufacturing Company

201-33 North Avenue, Eighteen

Los Angeles, California, U. S. A.

Root Service

WE ARE CLOSING THE FIRST SEASON IN

Our New Factory.

BECAUSE OF A LATE START IN GETTING MACHINERY SET FOR OPERATION OUR SERVICE EARLY THIS YEAR WAS NOT UP TO NORMAL.

We are taking advantage of the slack season to make up a surplus stock of standard goods and will be in a position to give prompt service in the future from both offices.

We believe our factory is filling a need for a higher standard of quality in hives, frames, and other beekeepers' supplies in Pacific Coast territory and merits your support.

Our company was incorporated as a California corporation last November, and there are still some shares available for investment.

Let us hear from you whether you are interested in selling honey or beeswax, or in buying supplies, or in making a side investment.

The A. I. Root Co. of California

1824 E. 15th St.
LOS ANGELES

52-54 Main St.
SAN FRANCISCO

"Griggs Saves You Freight"

TOLEDO

August is here--the White Clover Honey flow about over. . . Don't get short of sections and foundation--season promises to be good.

Honey Cans and Cases

Order these early--a limited number of 2d-hand cans on hand at 75c per case.

Honey--Honey--Honey

We shall be in the market for any quantity, both comb and extracted. . . Mail sample of extracted and state price asked in first letter.

BEESWAX always in demand
--Cash or in trade.

GRIGGS BROTHERS CO.

Dept. No. 25

Toledo, Ohio



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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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Assistant Editor

H. G. ROWE
Managing Editor

HERE IS A REPRODUCTION OF Muth's New Home in Cincinnati



Anticipating the wants of the trade and to meet the demands of our customers, we are now located at Pearl and Walnut Streets, carrying tremendous stocks—making this the largest Honey House in the country.

WHY YOU SHOULD BUY NOW. We advise you to buy your bee supplies now. You not only get the benefit of favorable market conditions, but you are assured of immediate delivery. There will be no disappointments if you send your order for bee supplies to MUTH NOW.

**LEWIS BEEWARE DADANT'S FOUNDATION
ROOT'S SMOKERS, EXTRACTORS, ETC.**

MUTH'S ADVANTAGES! We sell at factory prices, **save** you freight and give you the finest bee supplies manufactured.

Our new 1919 catalog sent for the mere asking. Drop us a card now!
OLD COMBS AND CAPPINGS. Send them to us for rendering. We pay you the highest market price for beeswax, and charge you but 5c per pound for the wax rendered. It pays to send your old combs and cappings.

WANTED, COMB HONEY. Comb and Extracted Honey find ready sales here. Tell us what you have. We buy beeswax at high prices. Always glad to reply to inquiries.

We will appreciate a visit from you. When in the city come and see us.

THE FRED W. MUTH COMPANY

Pearl and Walnut Sts.

"The Busy Beemen"

Cincinnati, Ohio

Superior Foundation Excels

READ THE FOLLOWING:

Superior Honey Co.,
Ogden, Utah.

Duboistown, Pa., R. F. D. No. 1.

Aug. 18, 1919.

Dear Sirs:—I have tested your foundation alongside of foundation of other makes, including that of the manufacturer who claimed that the bees took to theirs first. Given a fair test with yours, it is not as good a quality of foundation as your **SUPERIOR FOUNDATION**. I'll use your foundation whenever I can.

Yours truly,
C. P. STEINBACHER.

For best results specify **SUPERIOR FOUNDATION (Best by Test)**.
If your dealer can not supply you write us for special prices.

Superior Honey Company -:- Ogden, Utah
(MANUFACTURERS OF WEED PROCESS FOUNDATION)

HONEY WANTED HONEY

Write us what you have to offer in extracted or comb. If comb, state how packed, graded, and quantity. If extracted, state how put up, mail sample, and quote your lowest price. We will buy unlimited quantities if price and quality are right.

C. H. W. WEBER & COMPANY
2146 CENTRAL AVENUE CINCINNATI, OHIO

HONEY MARKETS

In a few instances an increase of a cent per pound over last month's prices may be noted. However, in general the conditions remain practically unchanged with a quiet but firm market and a fair demand.

U. S. Government Market Reports.

HONEY ARRIVALS SEPT. 1-14.

Medina, O.—37,700 pounds Colorado, 38,770 pounds Louisiana, 32,619 pounds Alabama, 3,220 pounds Ohio, 41,180 pounds Arizona.

Keokuk, Ia., and Hamilton, Ill.—No arrivals.

SHIPPING POINT INFORMATION—SEPT. 14.

San Francisco, Calif.—Warm, clear. Demand improving, market steady. Price to farmer: extracted, per pound, light amber alfalfa 14-15c, sage 17-19c, white alfalfa 16-18c, white sage and orange 18-20c.

Los Angeles, Calif.—Warm, partly cloudy. Demand and movement good, market firm. Carloads f. o. b., usual terms, per lb., orange blossom mostly 20c, white sage, supplies light, mostly 20c, extra light amber sage 18½-19c, light amber sage mostly 17½c, light amber alfalfa 15-16c. Beeswax, demand and movement moderate, price to farmers, l. c. l. lots mostly 40c per lb.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the prices at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding two weeks. Prices represent current quotations.)

Kansas City.—Approximately 120 cases arrived since last report, demand and movement moderate, market steady. Sales to jobbers: Missouri, comb, No. 1 light, 24-section flat cases \$7.50-8.00; extracted, No. 1 light, 21c per lb.

Chicago.—No carlot arrivals, supplies moderate, demand and movement good, market steady. Sales to jobbers, various States: extracted, sage and alfalfa, white 19-21c per lb., light amber 18-19c per lb. Beeswax, demand and movement good, market steady, light 48-50c, dark mostly 45c per lb.

Cleveland.—Supplies moderate, demand and movement slow, very few sales. Sales to jobbers: extracted, Californias, white clover 21½-24c, mostly 22-23c per lb. Comb and beeswax: too few sales to establish market.

New York.—Demand light, market firm. Sales to jobbers: extracted, per lb., California, light amber sage 19c, light amber alfalfa 17½c; Florida, fancy light 22-24c, lower grades 12-16c; New York, white clover 22-25c, light amber 18-20c; West Indies, per gallon \$1.40-1.50. Beeswax: imported, 50 bags Cuba, 153 bags Chili, 16 boxes 4 bags Porto Rico, 58 bags Central America, 7 bags South America arrived. Demand moderate, market steady; light 43-44c, dark 42-43c per lb.

Cincinnati.—1 California and 1 imported arrived, demand slow, very light inquiry, no movement, no sales reported. Beeswax, demand and movement moderate, market steady. Sales to jobbers, per lb., dark yellow 40c, light yellow 42c.

Denver.—Approximately 50,000 pounds extracted and 2,000 cases comb arrived, supplies liberal, demand and movement moderate, market steady, little change in prices. Sales to jobbers: comb, Colorado, No. 1 white, 24-section case \$6.50-6.75. Extracted, per lb., white 18-20c, light amber 17-19c. Beeswax, cash to farmer, light 38c per lb.

St. Louis.—Practically no supplies on market, practically no demand or movement, market steady. Sales to jobbers: extracted, per lb., southern amber, in barrels 14-15c, in cans 15-16c. Beeswax: prime, 40c per lb.

Philadelphia.—1 California, 1 Wyoming and approximately 200 cases New York and 11,000 pounds West Indies arrived since last report, demand and movement moderate, market steady. Extracted, sales to jobbers: New York buckwheat 15c per lb.; West Indies, amber \$1.50-1.60 per gallon. Purchases by local wholesalers delivered Philadelphia, per lb., white clover 18-20c; California, light orange 21c per lb.

Minneapolis.—Supplies very light, practically no demand, market weak, too few sales to establish market.

St. Paul.—Supplies very light, practically no de-

mand, market weak, too few sales to establish market.

EXPORTS OF HONEY, AUG. 1-20.

Total, 160,966 pounds; to Austria-Hungary, 61,800 pounds; to Denmark, 4,000; to Norway, 49,420; to Turkey in Europe, 30,000; to United Kingdom, 4,872; to Canada, 7,368; to East Indies, 1,863; to all other countries, 1,648 pounds.

George Livingston,
Acting Chief of Bureau.

General Quotations of Wholesalers.

[These firms are asked to quote the wholesale price they make to retailers. Accordingly their prices must be figured at least one profit higher than the price paid the producer. The large dealers do not quote prices in print that they will pay futrely to producers.]

NEW YORK.—We quote from one of the leading honey dealers in New York City, under date of Sept. 15:

"Honey is quiet and rather weak. Stocks are large and increasing, with a very limited demand. Beeswax is steady but quiet, with a tendency toward lower prices. Stocks are not large, but are beginning to accumulate. Extracted honey, light amber, in barrels \$1.40; amber \$1.40. Clean, average yellow beeswax, per lb. 43c, dark, 39c."

CLEVELAND.—Comb honey, none in stock. Extracted honey, white, 24½c; light amber, in cans, 22½c.

The Wm. Edwards Company.

Cleveland, O., Sept. 16.

CHICAGO.—Receipts have not been heavy and the demand has been equal thereto, hence at this date there is no surplus of any grade. The Rocky Mountain crop has not yet come forward and not any California offered. Comb honey, extra fancy, per case, \$7.50, or 35c per lb.; fancy, \$7.00, or 33c per lb.; No. 1, \$6.50, or 30c per lb.; No. 2, \$5.00-6.00, or 20 to 25c per lb. Extracted honey, white, per lb., 20c; light amber, in cans 18c, in barrels 17c; amber, in cans 15-17c, in barrels 14-16c. Clean, average yellow beeswax, per lb., 40c.

Chicago, Ill. Sept. 15. R. A. Burnett & Co.

ST. LOUIS.—Very little new comb honey arriving into this market. Extracted honey in ample supply and movement rather quiet. Extracted honey, light amber in cans 17c; amber, in cans 15-16c, in barrels 13-14c. Clean, average yellow beeswax, per lb. 39c.

R. Hartmann Produce Co.

St. Louis, Mo., Sept. 18.

KANSAS CITY.—Demand fair, stock light. Comb honey, extra fancy, per case, \$7.50; No. 1, \$7.25; No. 2, \$7.00. Extracted honey, light amber, in cans 20c. Clean, average yellow beeswax, per lb. 35c.

Kansas City, Mo., Sept. 16.

C. C. Clemons Produce Co.

TEXAS.—New syrup and fruits have slackened sales to some extent, tho there is a fair demand. Bulk comb honey, No. 1, 19½c. Extracted honey, light amber, in cans 17½c. Clean, average yellow beeswax, per lb. 36c.

J. A. Simmons.

Sabinal, Tex., Sept. 3.

PHOENIX.—Big crop; but no demand, no quotations, no market.

L. M. Lossing.

Phoenix, Ariz., Sept. 10.

BOULDER.—White extracted alfalfa and sweet clover honey, in 60-lb. cans, 16½-17c per lb., f. o. b. Comb, No. 1 \$6.35; No. 2, \$6.00.

The Foster Honey and Mercantile Co.

Boulder, Colo., Sept. 15.

LOS ANGELES.—Since the food agitation, the market has been a little quiet on all grades of honey. The sage crop is very short and is coming in very slowly in small lots. We understand also, that the Exchange has moved a good part of its orange honey. The present Eastern prices being quoted by the Exchange are as follows: White sage 20c, white orange 20c, extra light amber sage 19c, light amber sage 18c, light amber alfalfa 15c. We believe that as soon as the food agitation has settled somewhat,

there will be further demand for honey, and remaining stocks will move easily at these figures.

Wallace & Bryant.

Los Angeles, Calif., Sept. 3.

MONTREAL.—Demand quiet. Supply apparently large. Comb honey, extra fancy, per case, 30c; fancy, 28c; No. 1, 27c; No. 2, 24c. Extracted honey, white, per lb., 21c; light amber in cans 20c, in barrels 19½c; amber, in cans 17c, in barrels 16c.

Gunn, Langlois & Co., Ltd.

Montreal, Can., Sept. 15.

HAMILTON.—Honey moving a little faster, as we have been able to purchase at lower price than a few weeks ago. The purchasers did not seem willing to pay the high prices. Comb honey, none. Extracted honey, white, per lb., 25½c in 5-lb. tins; light amber, in cans, none. Clean, average yellow beeswax, none.

F. W. Fearman Co.

Hamilton, Ont., Sept. 15.

TORONTO.—Quotations unchanged since last month.

Eby-Blain Ltd.

Toronto, Can., Sept. 15.

CUBA.—Extracted honey, light amber, in barrels, \$1.25; amber, in barrels \$1.25. Clean, average yellow beeswax, per lb., 37c.

A. Marzol.

Matanzas, Cuba, Sept. 9.

Quotations From Producers.

Some of the actual producers have requested that they also have a little space on the market pages. We, accordingly, sent out some blanks this month asking questions that would be of general interest to beekeepers. The hearty response we received leads us to believe it worth while to extend our list next month. The questions, together with their answers, are as follows:

(1) What price is offered producers for both extracted and comb honey in your State? (2) What is the condition of the market? (3) What price are beekeepers holding for? (4) Is the condition of colonies normal for this time of year? (5) Have the colonies plenty of good stores?

ARIZONA.—(2) No offers. (3) 15c. (4) Yes. (5) Yes.—Wm. G. Hewes.

CALIFORNIA.—(4) Yes, decidedly. (5) Still extracting.—M. C. Richter.

FLORIDA.—(1) 14 to 16c for extracted; no comb. (2) Poor. (3) 20 to 25c. (4) In small yards, yes. Prospects not good for a fall flow. (5) Yes, except in some big yards where some feeding may be necessary.—Harry Hewitt.

ILLINOIS.—(1) Comb honey 30c, extracted 25c. (2) Hardly established yet. (3) 30 to 35c for comb, 25c for extracted. (4) Yes. (5) Yes.—A. L. Kildow.

INDIANA.—(1) No offers. We pay no attention to "offers." (2) Good. (3) 25c f. o. b. shippers' point in 60-lb. cans. Retail 30 to 35c in pails. (4) About 85 per cent. (5) No clover. Gathering goldenrod. Little or no feeding will be required, may get some fall surplus. The above is a result of observation in about 20 yards in Porter County.—E. S. Miller.

KANSAS.—(1) 20c extracted. (2) Good. (3) 20c. (4) Yes. (5) Most colonies have.—O. A. Keene.

KENTUCKY.—(1) Extracted 20-25c, comb 30c; about Falmouth 26-27c. (2) Good demand. Supply less than in 1918. (3) Extracted 25c. (4) Below normal. (5) No.—H. Garman.

LOUISIANA.—(1) No comb; extracted \$1.10 to \$1.30 per gal. (2) Good. (3) No holding. (4) Yes. (5) Fall flow just starting.—J. T. Archdekin.

MARYLAND.—(1) Extracted 22-25c. Comb 24-28c; demand slow. (2) Not much honey on market. (3) Some expect 30c for comb. (4) Little above normal. (5) Colonies are a little heavier than usual, and we are hoping we won't have to feed much, as sugar is hard to get. I would advise Maryland beekeepers not to take off their crop too close until they have obtained sugar, as an early freeze might

ruin our chances for the bees to fill up, and feeding back extracted honey is a losing game.—S. G. Crocker, Jr.

MASSACHUSETTS.—(1) Poor season, little comb. (2) Little demand. (3) A little early to tell. (4) No. (5) No; very light.—O. M. Smith.

MICHIGAN.—(1) Extracted 20c. Tendency to a rise. Believe price will be higher within the month. Comb honey 25 to 35c. (2) Beginning to be active, a decided variety in some markets. (3) Many not holding; others holding for 25c. (4) Normal except in a few places. (5) Some must feed. Unless sugar can be secured there is bound to be a very serious loss from starvation this year.—B. F. Kindig.

MISSOURI.—(1) In jobbing way at stores, extracted 20c, comb 25 to 30c. (2) Almost bare, but demand not strong. (3) Not holding. (4) In some few apiaries, yes; but foul brood (European) has played havoc with most yards. (5) Filling up fine.—Louis Macey.

(1) 25c for extracted, 35c for fancy comb. (3) 25c for extracted, 35c for comb. (4) Never better. (5) Abundance.—J. W. Romberger.

NEBRASKA.—(1) Retailing from 25c to 40 per lb. for either one. (2) Good. (3) About 40 to 45c. (4) Yes. (5) Yes.—F. J. Harris.

NEVADA.—No comb. Extracted, light amber, by case, 15c per pound f. o. b. here. (2) Demand good, supply practically gone. Very light crop. (3) Not holding. (4) Yes. (5) Yes.—T. W. Riggs.

NEW YORK.—(1) 25c. (2) Good. (3) None holding. (4) Above normal. (5) Yes.—S. Powers.

OHIO.—(1) 20c for extracted, 30c for comb. (2) Active. (3) 25c for extracted, no comb. (4) Yes. (5) No. At least 75 per cent will not survive until Christmas unless fed. Sugar hard to get.—Fred Leininger.

OKLAHOMA.—(1) Extracted 30c. No comb (2) Demand greater than supply. (3) Not holding. (4) About 85 per cent normal. (5) Much of honey badly mixed with honeydew and poor grades of honey. Feeding necessary in some cases.—C. F. Stiles.

VIRGINIA.—(1) Comb, 20 to 30 cents a pound in small lots; little extracted honey—about same price as comb. (2) No honey market. (3) None holding for fixed price. (4) Normal or below. (5) No.—J. Frank Fooshe.

WASHINGTON.—(1) The best offer 19c in 60-lb. tins; comb honey 22½c. (2) Extracted moving very slow. Comb honey, better demand. (3) Some for 20c. Most of the local honey dumped on market at any price. (4) Yes. Several hundred colonies on the east side were killed with poison spray early in the season. European and American foul brood both spreading on west side. (5) Yes.—W. L. Cox.

WISCONSIN.—(1) 20c wholesale. Retail 30 to 35c for extracted and 35c wholesale for comb. (2) Good. (3) 25 to 30c extracted. Little comb honey offered. (4) Excellent. Brood-rearing in from 4 to 8 frames. (5) Stores plentiful but perhaps not of best quality.—H. F. Wilson.

WEST VIRGINIA.—Retail price, comb honey, 35c; extracted, 35c. (2) Supplies low, price high, demand good. (3) Honey all sold locally. (4) Below normal. May build up. (5) Many have little or no stores.—Chas. A. Reese.

GOOD PRICES FOR YOUR Photos and Articles

We Will Pay You Well
for Them.

The Editors of Gleanings are desirous of good articles on subjects of interest to beekeepers. A higher price will be paid if accompanied by sharp, clear-cut photographs. Pictures to be used for Gleanings cover should be in about the same proportions as our cover and at least half as large.

PREPARE FOR 1920

Send your order NOW for supplies you will need next year, and thus secure the 5 per cent early order discount and have supplies on hand when needed.

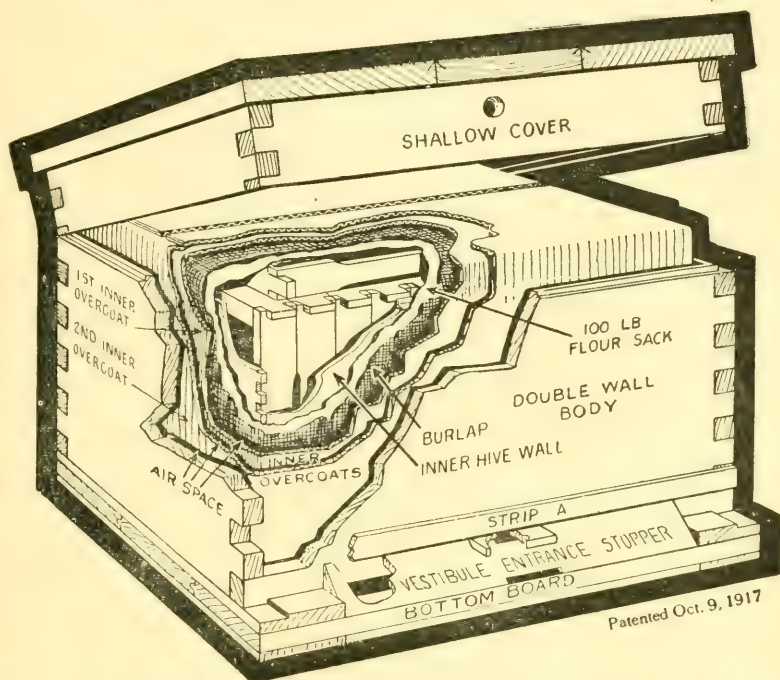
If you haven't our catalog let us know and we will mail you one immediately.

Send us a list of such goods as you expect to stock another season and we will quote you promptly our present prices and discounts.

Let us help you. We can save you in time and freight charges.

F. A. Salisbury
1631 West Genesee Street
Syracuse, N. Y.

Winter Problem Solved by the Hive with an Inner Overcoat



The above illustration shows the substantial, compact, neat, and efficient equipment that winters normal colonies of bees perfectly.

It consists of a frame of honey laid over the top of the others. If you have no extras, one can be removed from the brood-nest for the purpose. A 100-pound sack of flour is spread over the top and is laid over this. The First Inner Overcoat is telescoped down over the brood-nest in between the inner and outer hive walls, the flour sack and burlap being carried down with it. This has the effect of wrapping the brood-nest in a blanket. The Second Inner Overcoat is then telescoped down over the first. (The Inner Overcoats are removed in the spring and stored away in the flat.) This insulates the colony with a $\frac{5}{8}$ inner hive wall, with a flour sack and burlap wrapped about it, two thicknesses of corrugated paper board around the sides and ends and four thicknesses over the top, together with the intervening air spaces and the $\frac{7}{8}$ outer hive wall. The work is done quickly and easily with no litter of packing materials.

It will pay you to try out a sample shipment this fall. For the next 60 days, we will furnish five hives equipped as shown above for \$27.50, f. o. b., here.

TIN HONEY PACKAGES.

2	lb. Friction top cans, cases of 24
2	lb. Friction top cans, crates of 612
2 ½	lb. Friction top cans, cases of 24
2 ½	lb. Friction top cans, crates of 450
5	lb. Friction top pails, cases of 12
5	lb. Friction top pails, crates of 100
5	lb. Friction top pails, crates of 203
10	lb. Friction top pails, cases of 6
10	lb. Friction top pails, crates of 113

Special Prices.

Crates of 100 five-pound pails.....	\$ 8.00
Crates of 200 five-pound pails.....	15.00
Crates of 100 ten-pound pails.....	12.50
Sixty-pounds cans, two in a case, per case	1.15

Shipments made from Michigan, Ohio, Illinois and Maryland factories.

A. G. Woodman Co., Grand Rapids, Mich., U. S. A.

The Bees Won't Wait

When the honey flow is on, the bees won't wait.
They become imbued with the spirit of opportunity.
Then the hives must be ready; the supers piled up.
Every day's delay means a big loss in the honey crop.
There is no time then to wait for bee supplies.
"Forewarned is forearmed;" buy supplies this winter.
You can get your season's goods at lower prices now.

WE ALLOW A FIVE PER CENT DISCOUNT
ON CASH ORDERS IN OCTOBER.

"How" Booklets

There are two booklets, at 5c each, which every beekeeper should read in planning his 1920 profits. The titles are: "How to Winter Bees Outdoors" and "How to Use Comb Foundation." These are part of the Lewis Pocket Library of 11 booklets for 55 cents.

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Have we your name for our 1920 catalog? If not, send it in to us by return mail. There is a distributor near your apiary.

G. B. LEWIS CO., WATERTOWN, WIS.

Makers of Beeware

GLEANINGS IN BEE CULTURE

OCTOBER, 1919

EDITORIAL

IN THE JUST NEWS items, page 672, mention is made of the fact that I underwent



On the Job Again.

an operation for radical mastoid. While any physician would understand this, the average layman would, perhaps, have to be told that the surgeon chisels a hole thru the skull just back of the ear, after which he cleans out any diseased portion of the bone or tissue that may be left. This operation, which has been hanging over me for some years, was entirely successful. While I was on the operating-table for two hours, and under the anesthetic for four, it is now over with, and I see no reason why I should not live to be a hundred years old, as I am in perfect health otherwise.

I expect to be among my friends the beekeepers this fall and winter the same as usual, probably winding up in California during the coldest month of the year.

E. R. Root.

GLEANINGS HAS for some time been giving both the Government market reports



Producers to be Quoted.

and reports from the wholesalers. We are certain that our readers will be pleased to learn that we are now planning, with the co-operation of the beekeepers, to give also quotations from producers thruout the country. Reports from a few sections are given in this number, page 629; but we hope by next month to have a more complete report.

CONSIDERABLE WORRYING has been done by those who have sold their honey,



Yes, You Can Get Sugar.

only to find that their grocer will allow them but two pounds of sugar. But they should now cheer up, for they will find conditions not quite so bad as they deserve. In the first place, inquiry at the grocery or freight depot may result in purchase, at a reasonable price, of white granulated sugar that has been slightly damaged by rain, by being spilled on the floor, etc. A syrup made from such sugar will supply

the colonies with good winter stores. Those who can get white sugar should on no account use brown; for, altho colonies have been wintered successfully on the latter, it is not nearly so safe as the white.

And now we have good news for those who are unable to get even damaged sugar. The editor, feeling that something should be done immediately to supply the beekeepers with sugar, took up the matter with Dr. E. F. Phillips, who promised to do all in his power to obtain the much coveted sugar. The result of his efforts is before you in the form of the following telegram:

"Beekeepers unable to get granulated sugar to prevent starvation of bees should notify United States Sugar Equalization Board, 111 Wall St., New York, immediately, giving all necessary information. This Board will, if possible, arrange for proper distribution."

"HONEY FROM THE BEE direct to you! —sells the sweet stuff to Washingtonians



Selling Price Too Low.

for 17 cents a pound. How much do you pay?" This appears in the Washington Star for Sunday, Sept. 7. Is it any wonder that many who depend upon bees for a living, object to more small beekeepers entering the business when some of them show such utter ignorance of the cost of production and of bottling, and show not the slightest hesitation in spoiling the market for those whose very bread and butter depends upon their getting a fair return for their labor—a return that will enable them to purchase their daily requisites at the present high prices? On page 645 it will be noted that, according to Mr. Hersher, those who were getting from 9 to 12 cents a pound wholesale in 1912, should, in order to keep up with the 135 per cent increase in other commodities, now receive from 23 to 27 cents for extracted honey.

There is today absolutely no excuse for ignorance concerning the market. Either a bee journal or the Government reports would keep one better posted than this. A letter to the United States Department of Agriculture, Bureau of Markets, Washington, D. C., will bring the Government mar-

ket reports directly to one's door; or if one wishes to know prices during the interval between the semi-monthly reports, a telegram will give quick results.

Any beekeeper who learns of another retailing at so ridiculously low a price as 17 cents will doubtless find it quite worth his efforts to help place such a one in touch with the markets.



WE HAVE RECEIVED from the United States Department of Agriculture, Bureau of Crop Estimates, the September Monthly Crop Reporter. On page 92 is a column devoted to "honeybees and honey plants."



Honey Crop This Year Larger Than Last.

The report of the average amount of honey per colony produced by States and for the whole United States is very interesting and instructive. For the whole country it appears that the average yield per colony up to Sept. 1 was 42.6 per cent; 37 per cent for 1918; 35.9 for 1917, and 46.1 for 1916. The average beekeeper at first thought might think that the crop for the whole United States is less this year than last; but as one comes to analyze the report by States he will become convinced that it is right. Fortunately, the editor has an intimate knowledge, from private sources, of the production in some important bee States; and in every case, with the possible exception of one, the report from the Bureau of Crop Estimates by States agrees almost exactly with our own private estimates. For example, we made the statement some time ago that the clover yield for Ohio, Indiana, and Michigan would fall far short of that of last year. The Bureau of Crop Estimates shows for Ohio an average, per colony, of 24 pounds as against 42 for last year. For Indiana the figures stand 20 and 41; for Michigan, 29 and 54. Again, we stated that the clover crop for Wisconsin and Minnesota would be about double that of last year. The Government reports show Wisconsin with an average of 54 pounds for this year and last year an average of 26. Minnesota stands 64 and 32; Iowa, 67 and 30.

In most of the alfalfa-producing States, there is shown to be a slight gain over last year.

Among the Southern States, Texas leads off with an average of 63 pounds for this year as against 20 for last year; Louisiana, 40 and 25 respectively. Some of the other Southern States show a falling off, but they are not important honey-producing States.

With so many States showing a lead over last year in spite of the shortage in California, it is easy to see that the total crop for the entire United States is larger than last year. This accounts for the fact that the price of honey did not advance more sharply than it did.

In other respects the Government report shows that the condition of the colonies and

of the fall honey plants is much superior to last year.

In the meantime we observe that honey is now being exported to European countries, the bulk of it going to Austria-Hungary, Norway, and Turkey. If this keeps up it will have a tendency to counteract what might otherwise amount to a slump in prices, in view of the fact that the yield this year is larger than last year.

We have learned that the prospects for honey in California next season are unusually good. This view is based on the fact that the month of August was one of fogs. When this occurs it is said there will be plentiful rains, so necessary and important to the sages.



THE AVERAGE PERSON in the colder climates is apt to draw the conclusion that the beekeepers of the Southland or those in a semi-tropical climate have no wintering problem.



Regional Differences in the Wintering Problem.

problem—that all they have to do is to see that the bees have plenty of stores, and then pay no further attention to them. While, of course, a large amount of natural stores is a prime requisite in semi-tropical wintering, there are other factors to be considered. Indeed, the editor is coming to believe that the wintering problem in the semi-tropics is really as great as, if not greater than, that in the cold, cold Northern States where snow and ice and zero weather prevail for months at a time. The beekeepers of California and the Southland might as well make up their minds to the fact that it is no small job to bring a good colony of bees thru from fall till the following spring. The principal danger is starvation. While it is probable that only a small percentage of the colonies actually starve to death, a very large percentage, because of a shortage of stores, do not breed up properly, with the result that said colonies will be too weak to take advantage of the first honey flow. This is particularly noticeable in the orange districts of California, where thousands and thousands of colonies range from two and three frame nuclei to four and five frame at the time the orange flow comes on, and the yield from the orange is very heavy some seasons. Unless there is a large force of bees of the right age to gather the crop the colony will dwindle rapidly. In the same way colonies will be below par at the time tupelo comes on in the Southland.

The editor is pretty well convinced that, while plenty of natural stores is a prime requisite in the semi-tropics, many beekeepers are making the mistake of not providing adequate windbreaks and suitable protection. One reason why bees consume enormously of their stores in the semi-tropics is because of a lack of protection. Too many times colonies are wintered in two-story

hives with the brood-nest in the bottom story. The heat generated by the colony of bees rises into the upper story where it can do little or no good. Either the lower story should be raised to the top or there should be folds of newspaper between the upper and lower stories with a hole to admit one or two bees at a time. The newspaper will confine the heat to the lower story, and at the same time leave available the stores in the upper story.

We are of the opinion, from experiments conducted in California, that two or three frame nuclei, and even five-frame nuclei, could be better confined down to the actual combs they occupy by putting folds of newspaper around the sides. As soon as the bees need more room they will eat away the paper and thus expand the cluster when the weather conditions are more favorable.

There are times when packing-cases might be used to advantage, even in the Southland, but as to just when and where, we are not now prepared to make a definite statement. We are thoroly convinced, however, that many beekeepers in the semi-tropics can well afford to confine their clusters down to the smallest cubic capacity during December and January when it is supposed there is no wintering problem.

While it is true that bees can fly out almost every day in many of our Southern States and California, this very fact is what causes the field bees to die off prematurely. The sun draws them out; they bring in a little pollen, and sometimes a little nectar. This stimulates brood-rearing so that in some localities the queen lays 11 months in the year. The result is that she is worn out at a time when she ought to lay heavily so that there will be plenty of young bees of the right age to gather nectar for the first real honey flow. The beekeepers of the cold, cold North, where snow and ice prevail during winter, have no problem of worn-out queens. The enforced rest of three or four months is quite in accordance with nature. As soon as winter begins to turn into spring the queen will begin to lay. She has had a long rest, and she is in good condition to do heavy duty, and she does it. The three or four months of enforced rest makes it possible for the beekeepers of the colder climates to get good service out of queens for one or two seasons. But the beekeeper in the Southland or California, whose queens lay 11 months in the year, is blessed (or, rather, cursed) with worn-out queens; and the only solution lies in requeening at least once a year; and it would be much better, in many cases, we venture to suggest, if all colonies were requeened in the fall, or very early in the spring. In some cases they should, perhaps, be requeened every six months.

The real wintering problem in the semi-tropics is worn-out queens — queens that can't lay when they ought to—and inability to get queens for love or money when they are most needed.

As the editor looked over some of those mountain-sides or hill-sides in California he wondered if it would not be possible to dig caves in the sides, and put the bees in these caves, shut them up in the dark, and hold them there for two months. The temperature of the earth in California, we should guess, is between 55 and 60 degrees. If ventilation could be supplied, the bees in such caves would winter nicely, and all brood-rearing would be suspended during the winter confinement. In other words, it might be possible, even in California, to stop brood-rearing and give the queen a rest, stop the awful decimation of bees flying out in the fields and dying, and last, but not least, stop the heavy wastage of stores that takes place when the bees can fly almost every day during the winter. Of course the thing has never been tried yet; but David Running, our greatest living authority on cellar wintering, gave it as his opinion that bees might be wintered in the Southland in caves or dugouts, saving the drain on the queen, drain on the colony strength, and the drain on the natural stores.



NOW WHEN THERE IS so slight a difference between the price of extracted



Too Few Comb-Honey Producers.

comb honey, it may seem a rather strange time to urge the production of comb honey; but we believe that L. L. Andrews, page 664, is quite right; and that some other good beekeepers are also of the same opinion is shown by the fact that supply-dealers have noted in the sale of sections a marked increase over last year's sales. It is evident that many of the beekeepers are either going back to comb-honey production or else those now in the business are increasing their equipment.

Those skilled in comb-honey production are wise, we believe, in returning to it. Present prices can not be expected to hold indefinitely. Sooner or later honey will be selling much lower than now. As soon as this happens we may expect the same old difference in price between comb and extracted honey that held before the war.

This season has not been an unusually good one. Judging from the present condition of honey plants in many parts of the United States it seems quite likely that next season's crop will be a large one. It is also true that present prices have induced many more to take up beekeeping. Looking ahead, therefore, to next season, it seems not improbable that there may be a very large amount of extracted honey on the market, and but little comb. That there will be an over-production of extracted we hardly credit, and yet there may be an amount large enough to make it much more difficult for the producer to dispose of his crop. The comb-honey man, however, need have no fear along this line. For good comb honey there is always a ready market.

THE tendency nowadays is toward outdoor wintering; and undoubtedly this plan is better for most localities where there is more or less open winter weather with the temperature above freezing perhaps 10 days in every month during the coldest months. Where it remains cold, below freezing, seldom above, and at times ranges around the zero mark, outdoor wintering can be practiced provided the bees are warmly packed. And even where they are unpacked, in localities where there are deep snows thruout the coldest part of the winter they will often winter well; but it is advisable to have some packing even then. In localities where the temperature drops to zero, or where it remains severely cold during two or three months of the winter, indoor wintering is preferable; but the cellars must be properly constructed. Any indoor wintering will be poor where ventilation is poor. The temperature of a bee-cellar should be between 40 and 55 degrees and ought not to vary but a few degrees, preferably not more than five. Any bee-repository where the temperature can not be kept above 40 degrees at the lowest and below 60 at the highest should not be used unless there is plenty of ventilation. Often this can not be secured without the use of an electric fan, and that, of course, requires electricity in the house or repository.

As a general thing it may be said that a bee-cellar under a house with a furnace to heat the rooms above will often give good results; but the bee-room should be entirely shut off by a wall or partition from the furnace-room. During a part of the winter the door between may be left ajar for ventilation, and for raising the temperature provided the mercury shows lower than 40 degrees. An under-a-house bee-repository is usually not as good a place for wintering as a specially constructed cellar—that is, one wholly underground with a roof of not less than three feet of earth, or a cellar in a sidehill with at least four feet of embankment on all exposed sides and on top. Where the soil is pervious to water, the dirt on top should be covered with a roof. Where it is heavy yellow clay, well packed by a team of horses driven over it, a roof may not be needed. The point is, that the top covering should be **dry**. If it becomes soggy and damp from the fall rains, and then freezes, it is almost worse than nothing.

In our issue for September, 1918, pages 524 to 529 inclusive, I gave illustrations and specifications of cellars that have given excellent results. All of them were constructed according to the specifications given above.

Dear old Mother Earth is a great reser-

HOW TO BUILD A BEE-CELLAR

When to Winter Indoors and When Outdoors. Mother Earth as a Radiator of Heat and Cold for Cellars

By E. R. Root

order to get as much exposure of the ground temperature as possible. A cellar built square will have less wall and ceiling surface than one that is oblong. The temperature of Mother Earth runs all the way from 40 to 55, depending on the locality. During midwinter I have taken the temperature of the water in wells in our locality, and I have done this during summer. I have found that the variation between winter and summer is very slight—not more than two degrees. But it should be remembered that ordinary wells are open so that the surface temperature may influence the water to a slight degree. If the well is covered, the variation between winter and summer temperature of Mother Earth, or, more exactly speaking, of the water in the well, will be very slight.

In view of the fact that the ground within 10 feet of the surface will remain almost constant during winter (about 45 in our locality), the reader will see the great importance of having as much ground exposure or wall exposure as possible. The late G. M. Doolittle, some 30 years ago, built a cellar on exactly the lines that I am recommending today. On page 528, September, 1918 Gleanings, was given a pen drawing of that cellar in which Mr. Doolittle wintered his bees uniformly for a long period of years. As there shown, Mr. Doolittle long ago advocated a cellar quite similar to the one here described. He believed the cellar ceiling should be below the frost-line, and that during winter the temperature should be 45 degrees with a very moderate amount of ventilation. The variation in temperature in his cellar during the entire winter did not exceed two degrees. The hole in his ventilator was 6 x 8. Back of his cellar he had a fence built so that the driving snows would cover the roof, acting as a warm blanket. I do not remember the exact dimensions of this cellar; but it was not more than 10 feet wide, I should say, and perhaps 50 feet long. This would give a large exposure of wall tempered by the earth. Of course, in the average soil a wall of some kind would have practically the temperature of the earth back of it. It costs more to build an oblong cellar than a square one for a given capacity of cubic feet; but the advantage of having a more uniform temperature will be apparent.

Construction of Our Cellar.

Before building our cellar, we visited some of the best bee-cellars in the country,

voir of heat. Relatively speaking, the earth is warm if we get below the frost - line. An underground bee - repository should be long and narrow in

and then attempted to combine what seemed to us the best points of all. For a site we chose a railroad embankment at the west end of our warehouse. The cellar was built late in the fall. It was made 12 feet wide by 60 feet long. This has a capacity of from 400 to 600 colonies. The walls (A) are of solid concrete ten inches thick, reinforced with $\frac{3}{8}$ -inch steel bars (B) running horizontally and vertically, forming 18-inch squares. The ceiling (C) is solid concrete 12 inches thick in the center, sloping to 10 inches thick at each side, reinforced with half-inch steel bars (D) running crosswise every 4 inches, and $\frac{3}{8}$ -inch bars (B) lengthwise every 12 inches.

The cement floor (E), which is three inches thick, is drained by means of four-inch tiles (F) running lengthwise next to the walls and a foot below the floor, the tile being covered with coarse cinders (G) to the level of the floor.

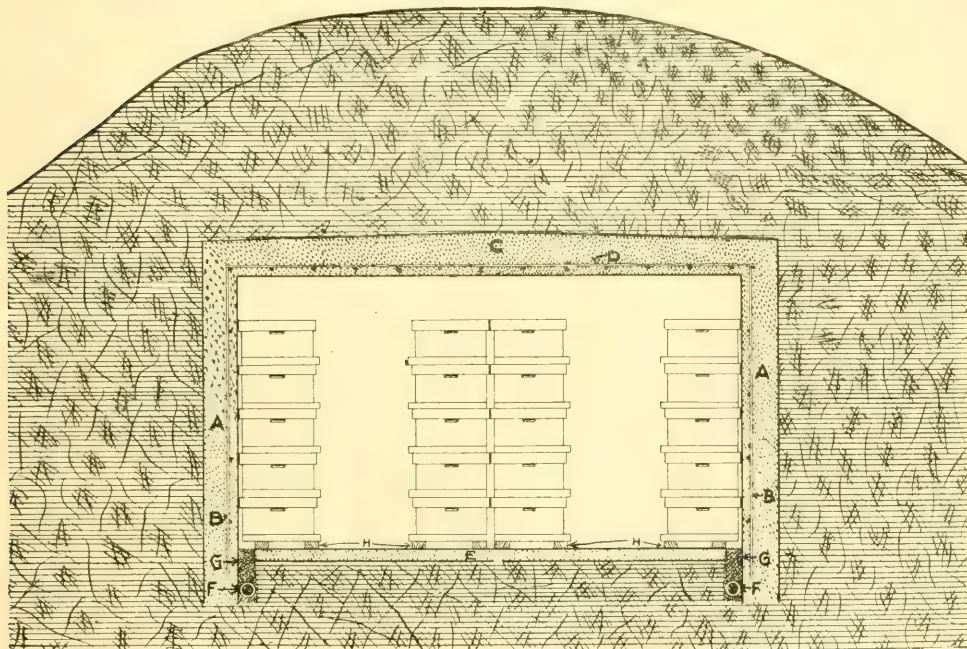
After the roof had hardened, yellow clay was scraped over the top. The clay was left five feet deep in the center, and sloped to three feet deep directly over the side walls. We had intended thoroughly packing the clay over the roof, but before the work of our cellar was finished a hard rain set in and the clay was completely soaked. This delayed the work until almost time for putting in the bees. Then the ground froze before the work could be finished; and when it finally thawed, and the work was completed, the dirt was too wet, and, of course, it

would not dry out as it should. It was, therefore, necessary to install an electric fan and start coke fires in several parts of the cellar. These were kept running day and night until the cellar was dry enough to remove the forms and move in the bees. Had the cellar been built earlier all this trouble would have been avoided.

This cellar opened into the basement room of our large warehouse. In the door was an electric fan and an electric heater. At the other end of the cellar was an eight-inch-tile chimney up thru the roof and thru the clay embankment on top. The object of the electric fan was to force ventilation from the large outer room of the warehouse where the air had been tempered before it was passed into the cellar. This air, forced by the electric fan, would pass directly thru the cellar lengthwise and escape thru the ventilating chimney at the extreme end before mentioned.

The boxing of the ventilating chimney from the ceiling to the floor was an important feature, as it shut out the light and enabled us to draw the foul air from floor or ceiling. The air from the cellar enters the chimney thru two small doors opening on opposite sides of the ventilator, one of which (A) is shown in the illustration. A vertical board (B) extending from the floor to about two inches above the doors prevents the light in the ventilator from shining thru the doors into the cellar.

If it is desired to take the warm foul air



Cross-section of Root's bee-cellar showing the two aisles and four long rows of hives. Two-by-fours (H) are placed on the cellar bottom as supports for the hives. The floor, walls, and ceiling of the cellar are of solid concrete, the ceiling and walls being reinforced with steel bars (B) and (D). The drainage-tile (F) is shown covered with cinders (G).

from the top of the cellar, the door (A) is closed, and the board (C) of the top opening is lifted off, allowing the air to pass out of the chimney from the top of the cellar. A board (D) extending downward excludes the light. An eight-inch tile (E) joins the top of the wooden shaft and extends about a foot above the ground.

Covering the back of the door and extending a short distance above it is a box $9\frac{1}{2}$ inches in depth. On a shelf near the top of the box is an electric heater for forcing warm air into the cellar, but in actual practice this heater was not found necessary. As a matter of fact we found the heat did more harm than good. Near the middle of the box is a shelf for holding the electric fan.

On the opposite side of the door is a similar shelf. Immediately above the shelves is a round 17-inch opening thru the cellar door. Near the fan is a door in the box, making easy the removal of the fan from one side of the door to the other. By placing the fan on the shelf inside the door, with the fan facing the opening in the cellar door, the foul air is rapidly drawn out of the cellar.

When placed on the opposite side of the door the tempered air from the warehouse may be drawn into the cellar. Being able to use the same fan in this way also saves buying a more expensive suction fan. A hinged door at the bottom of the air-chamber keeps the cold air next to the floor of the warehouse from being drawn into the bee-cellar when only warm air is desired.

As previously mentioned we found the heater unnecessary. In fact, Mr. Pritchard, who was in charge, disconnected the heat-wires, and since then we used only the electric fan. He kept this fan going almost all winter pumping air from the large basement thru the cellar. The daily variation was less than one degree and the extreme variation about five degrees. The only time there was any considerable variation was when somebody turned on the heat. Then the temperature went up five degrees.

Cellar Gave Good Results.

Mr. Pritchard reports that the bees in medium and strong colonies wintered nicely. Everything came out according to our expectations except the two-frame nuclei, each having a queen. These would have wintered all right had it not been for the fact that they were not put into the cellar until after a zero freeze. Mr. Pritchard says that he knows that these nuclei did not recover from that severe shock. The severe freeze started breeding that ended disastrously for some.

Importance of Ventilation.

Mr. Pritchard says that the tests last winter showed that ventilation is all-important. With our electric fan it was possible for us to regulate this to a nicety.

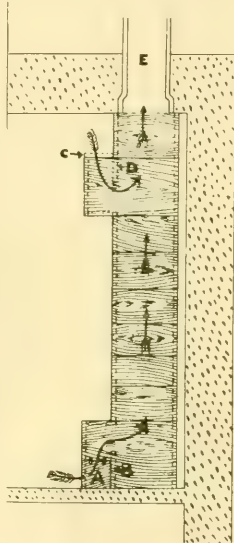
This brings up the question, if ventilation is so essential, how about the other fellow who has no electricity on his premises? If the bees are wintered in the house cellar, and they remain next to the furnace, the room can be ventilated by leaving the door into the furnace-room slightly ajar, or by opening a window or two in the bee-room at right, or both. If the bee-cellar is at an cutyard constructed on the lines already described, a subearth ventilator may be used in connection with a chimney ventilator thru the roof at one end of the cellar. During the coldest of the weather less ventilation will be required; and it may be necessary to close down the roof ventilator somewhat. During warmer weather, or during a warm winter especially, bees will require more ventilation.

David Running of Filion, Mich., an authority on cellar wintering, says less ventilation will be needed when the temperature can be held around from 43 to 45. Mr. Doolittle used to say the same thing. For this reason a good cellar should have a relatively large amount of wall, ceiling, and floor exposure backed by Mother Earth, the great heat-stabilizer.

I doubt if an electric fan will be needed with an ordinary outdoor cellar when the entrance leads outdoors. When, however, it communicates with a general basement such as ours, where the air is warmed, an electric fan is needed.

Summary.

If you are wintering well outdoors, do not change over to cellar wintering, even though you might thereby save a half of your stores. If the winter stores are in any way inferior, I should much prefer to have the bees outdoors. Cellar wintering may save considerable stores, and may be used to advantage where the climate is very severe. If there are deep snows, three or four feet or more, or enough to cover the winter packing-cases, and if it remains so, and the snow does not thaw and freeze around the entrance, outdoor wintering is preferable. With very deep snow, bees can sometimes be wintered in single-walled hives; but even if they can be so wintered, that is not proof that double walls would not save a lot of bees and stores.



Ventilating chimney at rear of cellar. Air leaves the cellar thru the door (A), passing over the top of board (B), thru the wooden shaft and tile (E). When desired, door (A) is closed, board (C) removed, and air from the top of the cellar allowed to pass thru the upper opening under the lower edge of board (D), and up thru the chimney.

THE genus *Rubus* of the rose family contains the raspberries and blackberries. There are many species widely distributed in the North Temperate Zone. In the raspberries the fruit falls away easily from the dryish cone-like receptacle; in the blackberries the fruit does not separate from the juicy receptacle, but both come away from the calyx together.

The value of the blackberry (*Rubus allegheniensis*) as a honey plant varies widely in different parts of North America. In New England the wild species are seldom sufficiently common to be of much importance to bee culture; nor do the cultivated varieties yield nectar freely. As visitors the solitary bees far outnumber the honeybees, which manifest a preference for collecting pollen rather than the scanty supply of nectar. In New York, New Jersey, and Pennsylvania little mention is made by beekeepers of the blackberry. In Tennessee, Buchanan says that the blackberries yield little or no nectar, and while plentiful seem to be almost entirely neglected by honeybees.

In Michigan, after the hardwood forest of beech and maple has been cut for lumber, there speedily springs up a luxuriant growth of brambles, many acres being covered with raspberries and blackberries; but while the former is an excellent honey plant, the latter offers little attraction to the beekeeper and is not even mentioned in the list of honey plants of this State published in *Gleanings* by Ira D. Bartlett, August 1, 1914. In northern Michigan chief reliance is placed on the raspberry, the clovers, the milkweed, and the willow-herb. Again, E. D. Townsend in describing the honey plants of Michigan in *Gleanings* for Oct. 1, 1908, says that after the willow-herb blackberry brush grows up, and later white clover comes in; but the blackberry never produces honey, for the bees rarely notice it.

If the blackberry fails the beekeeper in Michigan, it might readily be concluded that it is of no value anywhere. Here the conditions under which it grows appear to be almost ideal, and, if it is a failure in this State, its omission from the list of honey plants would seem to be warranted; but strangely enough in other

BLACKBERRY as a HONEY PLANT

Yields Considerable Nectar in Georgia, California, and Other Sections

By John H. Lovell

from the wild blackberries, which are abundant in the woods. The blackberry flow is at its best about the middle of April, and the average yield is about 25 pounds per colony.

In California the blackberry is of even greater value. In a letter to the writer M. C. Richter writes that it is of immense value. California botanists now call the blackberry the dewberry (see Bailey's *Cyclopedia of Horticulture*), and in my revised list of "Honey Plants of California" I mention *Rubus baileyanus* or American dewberry, and *Rubus vitifolius*, or California dewberry. Both of these plants produce sur-

sections it stands in the front ranks of the honey flora. In northern Georgia, at Bogart, according to Frank C. Pellett, the principal crop comes



California blackberry usually called dewberry.



Ordinary blackberry which yields nectar in Georgia and certain other sections.

plus crops. The honey is light amber and has an excellent flavor. In former years Mr. Lynch of Stockton produced honey from the California dewberry. While I was engaged in honey production in Chile, I produced one spring a small surplus from the wild dewberry of that country.

The English writer Dobbie in his book, "Bee Pasturage," says of the blackberry, honey value 70 per cent; pollen value 30 per cent. The same writer places the honey value of dandelion at 30 per cent, pollen value 40 per cent; from which it appears that he regards the blackberry as much the more valuable.

The flowers of the blackberry are larger

than those of the raspberry, and the petals spread out flat affording a convenient landing place for insects. The stamens also bend away from the center, and as the outer anthers dehisce first, the flowers are usually cross-pollinated before the inner anthers, which may effect self-pollination, have opened. The stigmas may mature slightly before the anthers. The nectar is secreted by a fleshy ring inside of the stamens, and as it can be more easily obtained than that of the raspberry the flowers are visited by a larger and more varied company of insects. More than 100 species have been collected on the inflorescence.

J. H. Lovell.

Waldoboro, Maine.



MY actual work with the bees dates from the spring of 1885. That season was an extra - good one in Vermont, giving us a bountiful yield from basswood, which has now become very scarce. I never owned a large apiary, altho I have cared for many, and worked two seasons under A. E. Manum where the business was conducted on a large scale.

In 1910 my apiary had increased so that it was not advisable to keep it on my small city lot, it being too close to my

A PRACTICAL APIARY HOUSE

Construction of Apiary House and Management of Bees Therein

By H. William Scott

must be some distance out of the city. No convenient house nor shed was available at the chosen site, which I had selected at the bottom of a basin where two rivers come together. I must have some place in which to store appliances. I must do the work with them, rain or shine. I must have things arranged so I could lock all up and not be

neighbors. My profession does not permit of regular time being spent with the bees, altho I can usually arrange enough time to care for them. They

afraid that they would be meddled with. I leased a small plot upon a hillside rising sharply on the northwest and west, protected by trees on the west and south, and open only on the east, with a small brook running along one side, which furnishes water the greater part of the year.

Construction of Apiary House.

Here I erected my building, 8 feet wide, 24 long, 11 feet in front, and 8 high in back. It was built of No. 2 spruce lumber, boards planed on two sides and matched, the 2 by 4's planed on four sides. This gives a smooth surface inside and outside. The outside is well painted, all in white, except that the front is painted in sections in red, white, and blue—to help the bees in marking their locations. The roof is covered with two-ply rubberoid roofing-paper kept painted with roofing-paint. The studs are

bevel is $1\frac{1}{2}$ inches. On this is placed the floor for the hives, having an opening, boards beveled to match, which opening is 8 inches in from the inside of the wall boarding.

The entrance thru the wall boarding is $\frac{7}{8}$ by 15 inches. The passageway from the outer to the inner entrance is about 9 inches in length, and the inner end is 2 inches higher than the outer. The hives are placed on this floor within 4 inches of the wall, and are thus 4 inches apart. The frames are parallel with the wall and entrance for ease in handling. The entrances are wide open during hot weather, and at other periods are closed by means of an entrance-guard which is a board 2 inches wide and 18 long, having a $\frac{3}{8}$ by 8-inch opening on one edge and a $\frac{3}{8}$ by 2-inch opening on the other edge. The guard is placed over the outer entrance



Apiary house of H. William Scott. The front is painted in sections in red, white, and blue, to help the bees in marking their location. These colors produce a strange effect in the picture, misleading one to believe the building rather pretentious with eight doors on the front, where, as a matter of fact, there is only a plain wall with no doors in front.

set on the floor, two feet on centers. The shelf is 4 feet up from the floor, and should be built 20 inches wide, with an extension-back for winter to hold the packing. On the floor along the side wall pieces of $\frac{7}{8}$ board 3 by 20 are placed on each side of each stud. On the floor I put a strip of one-ply rubberoid roofing 20 inches wide. At the back a piece of board is laid so as to make the width of the platform 2 feet; then between the two short pieces, laid from front to back, is put a board beveled so that the

by being slid down back of two finishing nails driven part way into the alighting-board. This alighting-board is about 15 inches wide, and runs the whole length of the building, sloping from the entrance about 3 inches in the 15. Very little wind enters this entrance, and storms never. I found it necessary to nail the entrance-guards on the lower alighting-board to prevent skunks from pulling them off.

The windows are a single pane of 12 by 16 glass, sliding up or down on the wall, and

are held by slats rabbeted 18 by $\frac{1}{4}$. Thru these rabbets are two sets of small holes in which nails are placed to hold the glass at the desired height, either to close the opening entirely or to lower the glass, leaving an opening at the top for the escape of bees.

On the outside each window is covered with wire cloth extending about 3 inches above the window, and held off from the building $\frac{1}{4}$ inch to allow the escape of bees.

There are, also, three small openings, 5 by 20, near the roof. These are covered with wire cloth in the same manner, permitting bees, smoke, and foul air to escape readily. These openings are never closed. The building is now on 6 by 6 sills, a small dugout underneath, two trapdoors in the floor, with a screened window in the south end underneath, and a tile-drain pipe at the lowest point to take out any surface water.

Colonies are on the east side and south end only, the other side being used for workshop and storage. The honey-extractor is set on this floor just behind the pile of supers at the right in the photo, and honey runs into sap-tubs under the floor thru fine wire-cloth strainers, and is handled in these sixteen-quart tin sap-tubs until melted for sale. The building at eight feet is not wide enough for convenience.

Method of Packing.

The photo of the inside shows the method of packing. Two frames are taken from the ten-frame brood-nest, Hoffman frames, the other eight being at the back. A regular-



Inside view of apiary house, showing bees packed for winter.

sized chaff division-board is slid down in front, care being taken that it does not cover the entrance. The three middle combs are slightly separated so as to widen the spaces between them. Over the frames are placed two short sticks about one inch square, or, preferably, a common fifty-cigar box has its cover nailed on, and is then sawed thru the center lengthwise so as to form two shallow boxes, one of which is turned over each colony. Over this is spread a piece of carpet or burlap, and over this, at the back, is put a piece of enamel or oil-

cloth, using care that there be a one-inch space of the burlap toward the frames from the outside that is not covered by the oil-cloth, this space being directly over the entrance. The purpose of this space is to permit a freer avenue for ventilation **directly over the entrance**. This arrangement leaves no possibility of draft **thru** the cluster of bees, yet permits the escape of all moisture upward into the packing at the front, where it is readily dried by the sun shining thru the window. Over the top is then spread some planer shavings, pressed down closely in the corners. Next is put on the sack of shavings, about five or six inches thick. There is four inches of packing on all four sides besides the two-inch chaff division-board at the front. The inside-view photo shows the three six-inch boards in place holding the packing. I used to unpack for the summer; but now I take off only the top-board, leaving the rest of the packing during the summer.

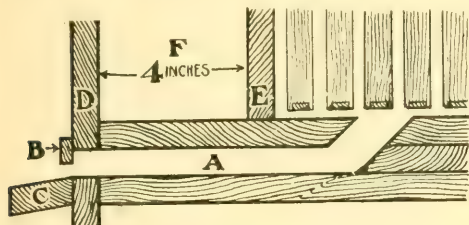
My Management.

And now we come to the management. I plan to begin in July, for that is the time to see that all colonies have a good queen so as to insure the hatching of a large force of bees from August 20 to October 1. I provide each colony with 28 to 33 pounds of stores (I prefer to have about one-half full of honey and then give, for the other half of their supply, sugar syrup fed early in October, which will then be placed where it will be used for winter consumption. When feeding I use two-quart glass jars on the pepper-box principle. Next I pack all as above described; lock the door and the gate, and leave until the following April or first of May. Very little can be done here in April most years—merely looking after accidents, and possibly contracting some brood-chambers where the colony appears to be small; but I plan to keep all **warm**. The first time any examination is made, the oil-cloth is spread over the entire top, and sometimes newspapers are added. We can now hold **all the heat**, as the moisture will take care of itself when bees can fly frequently.

In May we see that each colony has plenty of feed; and as warmer weather advances we enlarge the brood-nest, removing the chaff division-board and returning the frames taken out. Later we add a half-depth super as the strength of the colony increases; and as we work for extracted honey I frequently help out the weaker colonies with hatching brood from the strongest. This would not do so well if I were working for comb honey. All queens are clipped this month. As soon as the colonies can care for it, and the weather has become warm, full-depth supers are added, some brood is placed therein above the center of the brood-nest, and the queen allowed full sway of the two. Just before the white-honey flow I do not wish for much honey in the hive, and usually am not bothered with it. I work to have all winter stores cleaned up,

as I do not want any of the sugar stores to get into the extractor.

As soon as the white-honey flow begins (and ours is from raspberries) I put the queens all below the excluders, at this time putting three to five frames of **unsealed brood** above. Why unsealed? Because I am restricting the queen to **one** chamber. Sealed brood will hatch sooner; and with three to five empty combs, and the others



Entrance passageway is $\frac{3}{8}$ inch at A and $1\frac{1}{2}$ inches at B. The outside entrance is contracted to $\frac{3}{8}$ inch by 2 inches in winter. C is front wall of brood-chamber and D, front wall of building. E is sloping alighting-board.

mostly of sealed brood, the queen will not be restricted in her laying operations for some time, and swarming will be less likely to occur. I use eight frames in my supers, and there will be plenty of room for the storing of honey above; but if there should be a sudden heavy early flow I shall know it from my scale hive at once and can easily add more room where needed. Swarming? Yes, I have some. I am also four miles away, and do not have any one to watch for swarms either. I would if I could afford it; but why spend more for labor than the worth of the bees? I keep close watch of the condition of the colonies from June 15 to August 15—that is, as closely as I can. If a colony swarms I sometimes cut out all cells and sometimes try other plans. Usually I cut out all cells; and after eight

or ten days I return their own queen if I have preserved her; otherwise I give a young laying queen. It is not of much consequence to have queens laying between June 15 and August 1 here. There is very little honey gathered, as a rule, between August 10 and September 10, altho some years when the **weather is just right** we have a flow in September from asters.

Why I Like a House Apiary.

After seven years' use of the house I like it more and more. I have 40 colonies at this yard—all I want here—28 in the house and 12 outside in double-walled hives. I have never been able to see any preference as to the care or results. I can go to work whenever I can go to the yard; wind, rain, or hot sunshine does not stop all of my work. Everything is under cover. Robbers do not bother. No pestering, ugly bees are following one around. Brood is not so quickly chilled. No carrying long distances. All is secure from mauraunders. I believe that such a building, where slight protection is needed, as in some of the south-central States, would be the ideal arrangement. It would shelter from the hot sun, yet the open windows would give ventilation sufficient so that it would always be comfortable to work. The handling of honey in the house is easy, tho work on the second shelf must be done from the stepladder. I have never had any difficulty with drifting of bees, but have had some trouble in getting young queens mated, and for that I rely on nuclei. As to the cost, it is small. The building is so plain that it could even all be cut out at a factory, and almost any beekeeper could erect it himself. I planned to make it simple yet good. It had to be bee-tight, which was accomplished by the use of good lumber finished when dry. Such a building all erected ought not to cost much more than double-walled hives.

Barre, Vt.



FIELD meets of beekeepers have now come to be quite the fashion, and a good fashion it is. I wish it were possible to attend all of them. I would go to many more, if some scheme could be devised by which they could be arranged on a consecutive schedule. This would make it possible for Dr. Phillips and his staff of speakers to take in more of them than they can now do, on the present hit-and-miss plan. I offer the suggestion that Dr. Phillips be asked months ahead to arrange a schedule of dates for all the associations that contemplate holding field meets. I

SOME IMPORTANT FIELD MEETS

*A Few Field Meets which the
Editor has had the Pleasure of
Attending this Summer*

By E. R. Root

have been able to attend only a few. The first of the season was in Massachusetts.

On July 26 I attended a meet of the Eastern Massachusetts

Society of Beekeepers held at the home of Charles I. C. Mallory, Worcester Boulevard, Boston; and considering the threatening weather, dark clouds, and smart dashes of rain, there was a good attendance. The principal speakers were Dr. Burton N. Gates, just returned from Canada, but now of Worcester, Mass.; Arthur C. Miller, Providence, R. I.; E. W. Frisbee, North Andover, Mass., and E. R. Root of Medina.

Dr. Gates, formerly Professor of Bee Culture at the Amherst Agricultural College, had severed his connection there and gone to Canada to fill a like position. Another call brought him back home, but not into bees. He said with some regret that he had no bees and might never again give any attention to bee culture. This will be regret-



Kennith Hawkins, formerly of the Bureau of Entomology, Washington, D. C., but now of the G. B. Lewis Co., addressing the big New York field meet on Aug. 1, 1919.

ted by Dr. Gates' friends, as he was not only one of the leading experts in apiculture but one who was able to impart to others what he knew. His many students all over the country testify to the excellent work that he did.

Arthur C. Miller spoke on the use of large hives and how to use a bee-smoker. Paper, he said, is not good to use to ignite fuel. Loose wood shavings from a hand plane are the best. When thru with the smoker he stops it up with a cork, and then it goes out. As Mr. Miller's views on large hives are so well known we will not repeat them here.

Mr. Frisbee told how the bees in Massachusetts were killed by sprays that are designed to destroy the gypsy moth that still threatens the destruction of shade trees. He threw out the suggestion that the State use repellents in their poisonous sprays—repellent to bees but not repellent to the gypsy moth. This, he was sure, would eliminate the heavy losses of bees in some sections.

The largest field meet that was ever held in the United States except the one in Jenkintown, near Philadelphia, in 1906, was held on August 1 at Newark, N. Y., at the home of Deroy Taylor. The number of ice-cream cones handed out indicated there were between 500 and 600 beekeepers present, many of whom had apiaries running all the way from 300 to 1,000 colonies.

The president, O. L. Hershisier, delivered an interesting address on the price of honey and the price of supplies. Among other things he said:

"Since 1912 the values of cattle, sheep, hogs, corn, oats, clover seed, raw sugar, beans, butter, cheese, eggs, chickens, pota-



Fig. 2.—Eating honey ice cream at the big field meet of beekeepers held at the home of Deroy Taylor. Newark, N. Y., on Aug. 1.

toes, maple syrup, cotton, and flour have advanced an average of 135 per cent and these 16 representative products are a fair guide as to the increased value and cost of nearly every thing we use.

"In 1912 the best extracted honey was quoted wholesale at from 9 to 12 cents per pound, and comb honey at 15 to 20 cents, or an average of about 10 and 17 cents respectively; and it is natural and logical that these 1912 values in honey should be increased to conform to the values of all other necessities. An advance of 135 per cent on the 1912 values of honey is, in fact, necessary to the honey-producer in order that he may continue his standard of living as it was some five years ago, which would bring the wholesale prices of extracted honey up to 23 to 27 cents per pound and of comb honey up to 40 to 45 cents for the best fancy grades.

"Notwithstanding comparisons are said to be odious, I wish to refer to the comparative prices of beekeepers' supplies for the years 1912 and 1919. By selecting nine represen-



Tent used at beekeepers' chautauqua held at Madison, Wis.

tative objects of beekeepers' supplies, viz.: One-story hives in lots of 10, bodies in lots of 10, both 10-frame size, sections, smokers, 4 frame automatic honey-extractors, medium brood foundation, honey-knives, silk beeveils, and 5-gallon tin cans, it is found that the average advance has been 84 per cent. When this is compared with the advance of 135 per cent, as shown in the 16 representative commodities before mentioned, I am impressed with the belief that we are getting our beekeepers' supplies at a very reasonable rate, and I confess some surprise at what I discovered to be the facts."

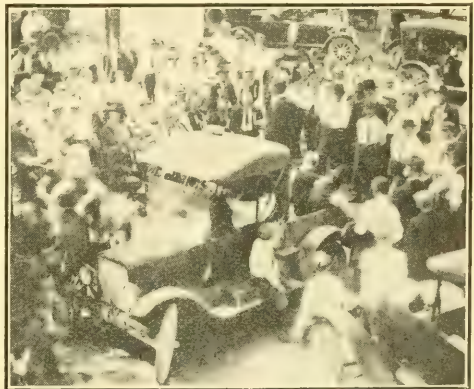
Mr. Hershiser was followed by Kenneth Hawkins, lately of the Bureau of Entomology, but now with the G. B. Lewis Co., Watertown, Wis. He spoke of the value of protection and good colonies. He emphasized particularly the importance of better beekeeping. Mr. Hawkins was followed by Geo. H. Rea, E. R. Root of Medina, H. L. Case, S. D. House, and others.



Geo. H. Rea, bee extension man, addressing the beekeepers at the annual field meet at Newark, N. Y.

An effort was made looking toward an organization similar to the Exchange of California, thru which its members could not only sell their honey in a co-operative way but also buy their supplies. A committee was appointed to report at a later time.

One feature of the day was a picnic dinner. The beekeepers formed themselves into groups or families, each furnishing their own lunch. The Taylor Co. presented the crowd with some ice cream of extra-fine quality. Finally the lunchers began to ask Mr. Taylor what made that ice cream so nice. He answered in one word—honey.



B. F. Kindig addressing the Ohio field meet at Delphos, O.



Pres. O. L. Hershisier addressing the New York State field meet of beekeepers at Newark, N. Y., on the cost of supplies. He shows that the average advance in beekeepers' supplies has been 84 per cent while that of other commodities has been 135 per cent.

The day was just right—not too warm nor yet too cool.

There is no more enthusiastic bunch of beekeepers than those in New York. In spite of bee disease, unless we except southern California, Ontario, and Michigan, there are more beekeepers to the square mile—yes, more beekeepers, if we leave out the qualifying adjective “big,” than in any other State in the Union.

On Aug. 9 we attended another field meet at the home of Miss Josephine Morse, South Lancaster, Mass. Dr. Gates was unable to be present, on account of another meeting, and therefore E. R. Root was given the “floor” for the entire afternoon. During the afternoon a real old-fashioned swarm came out from one of Miss Morse’s hives, and was making for one of the tall trees in the good old orthodox fashion. I did not stay to see Miss Morse get it down.

A series of field meets or, rather, beekeepers’ Chautauqua, was held at Madison, Wis., from Aug. 18 to 23. Dr. E. F. Phillips and G. S. Demuth, of the Bureau of Entomology, were the principal speakers. E. R. Root was present on the 20th and 21st, delivering a couple of addresses. The attendance (something like 160) would have been more than doubled had it not been for a mistake in an announcement in three of the bee journals—Gleanings, the American Bee Journal, and the Domestic Beekeeper—

stating that the Chautauqua would be held during the week of Aug. 25 to 30.

Prof. H. F. Wilson of the Department of Economics and Entomologist of the University of Wisconsin, was the man in charge of the Chautauqua—a man, apparently, who left no stone unturned to make this a big week.

Dr. Phillips and his class of speakers are doing a world of good among the beekeepers in the matter of emphasizing the importance of better beekeeping—first, good wintering, and then strong colonies of young bees in time for the harvest. They are attempting to clear up the confusion that exists in reference to the two diseases, American and European foul brood. It is to be hoped they can extend their meets over the country generally.

Another interesting field meet was held near Belleville, Mich., on Aug. 22. This was held at the beautiful summer resort of A. Suterka. Mr. S. has dammed up the river near his place, put in a picturesque water-wheel to run a gristmill, and on the banks of this stream he has put up an attractive bathing-house, and near this, under the shade of a large tree, was held the field meet. The speakers of the day were B. F. Kindig, State Apiarist; and E. R. Root, editor of Gleanings; F. R. Osborn, of Milford, and others. Mr. Suterka is not only an enthusiastic beekeeper, but a breeder of poultry.

Like A. I. Root he believes in utilizing the forces of nature, using not only wind power but water also. A mere description can give but a faint idea of the beauty of the place. It is rather hard to get to, but well worth while after one gets there.

B. F. Kindig in his address showed that the beekeepers of Michigan in the fight on bee diseases had many times been treating for American when they really had European foul brood. He went on to state there is a malignant stage of European that looks very much like the American type, and that

it is important that the beekeeper know what he is treating. The bacteriological department of the college at East Lansing has now a bacteriologist who is giving his whole time to the diseases of bees. This will be supplemental to the work done in Washington, D. C.

Mr. Kindig is one of the best bee instructors in the United States. He is certainly making good in Michigan, and Michigan needs just such a man, because it is one of the three leaders in bee culture east of the Mississippi.



IN the August number of Gleanings the editor has given us an interesting account of some of the field meetings of beekeepers which it has been the good fortune of the editor and of the beekeepers for him to attend. As he says, such meetings are becoming more common; but I wonder if the readers of Gleanings realize how very common they are. For some time the apiary inspectors have been coming more and more to realize the greater benefit to be derived from their work if they could get a number of beekeepers together all at one time for instruction in disease control, and these men, who are our original extension men, have held, and are holding, many such meetings. A large number of the States now have

men who are devoting their time and attention to the upbuilding of the beekeeping industry, and these men have also been active in planning and holding meetings for the betterment of beekeeping. Beekeepers themselves have long recognized that it is only by getting together for an exchange of views that they make progress in their business, and various state and county associations have for years been holding meetings. Formerly, as indicated by the editor, most of these were the regular annual meetings, usually held in the winter season, altho the holding of special field meetings or picnics in the summer is becoming more and more common. The summer meetings in New York, under the auspices of the State Association of Beekeepers' Societies, have

EXTENT OF BEEKEEPERS' MEETS

Extension Work Big Factor in Upbuilding Beekeeping. Number of Progressive Beekeepers Increasing

By E. F. Phillips

the number of beekeepers who profited by these meetings is only a matter of speculation. We all know, however, that these gatherings have had an important part in making beekeeping the important industry which it is today.

been among the best that have been held, from the standpoint of both helpfulness and attendance. The grand total of the number of meetings so held and of

Since 1916 an additional factor has been introduced into the plan of things in beekeeping, for it was then that the first extension men in beekeeping were put on the road. From the very beginning of this work it was recognized that there should be a closer organization of the beekeepers of the country, more associations and

more chances for them to get together. The bee journals have since then recorded the formation of a large number of new county associations of beekeepers, but none of them have recorded all these. At least 300 such associations have been formed, chiefly thru the efforts of the extension men. What this means for the future of beekeeping we cannot estimate, but several States, notably Wisconsin and New York, are forming all of these associations within the State into a federation thru the state organizations. It is thru such federation that success in the future of beekeeping organization undoubtedly lies; and this is recognized by the National Association, as shown by the plan to have a gathering of the representatives of all associations at Kansas City in



An American foul-brood gathering in California.

January. If all the associations send representatives this will be a large gathering of beekeepers. It is feared that most of the organizations are not yet quite ready for such a step, but the National can perhaps form the machinery thru which they may all get together later, when the advantages of such a large organization are more manifest.

Growth of Extension Work.

The forming of associations is merely incidental to the work of these extension men; in fact, this is a small part of their work. While we do not know the total of the work done by other agencies in the way of getting beekeepers together for mutual help and for instruction, we can get a line on the meetings held by the extension men, for those connected with the Bureau of Entomology make reports on all meetings held. During

gether, and most of us know that they did far more than this, the work is worth while, for beekeepers cannot get together without deriving benefit therefrom. The bee journals cannot report all these meetings, for there is not space in them even for adequate announcements. Photographs of the beekeepers at these meetings are not taken, although there is almost always a camera enthusiast who wastes a few films on the crowds. If all the photographs taken were printed, Gleanings would have to be greatly enlarged even to give room for the cuts.

The Extension Man, Himself.

What is an extension man? It is generally recognized that he is a man who knows beekeeping, and that in his meetings and elsewhere he gives freely of his knowledge to the beekeepers with whom he comes in



Some of the soldiers are showing considerable interest in beekeeping, due to the government's offer to teach the business to returned soldiers. The short extension courses to assist soldiers in becoming efficient and financially successful apiarists are similar to those recently held at Ithaca, N. Y., and various places in California. The entire cost of acquiring the education is borne by the Government and the soldier paid a monthly compensation while the training lasts. Those in the above cut are disabled soldiers from Walter Reed general hospital visiting the Bureau of Entomology apiary.

the year ending June 30, 1919, these men held over 1,000 meetings, the total attendance being over 25,000 beekeepers. They also visited beekeepers in their own apiaries in 2,500 instances. This is, beyond doubt, the largest effort in getting beekeepers together that has ever been made, and it means something to the beekeeping industry. If we were to assume that the extension men did nothing else than get the beekeepers to-

contact. He is more than this, however. Going about as he does among the beekeepers he has opportunity to get for himself a vast store of knowledge concerning beekeeping methods, local conditions, and the commonest mistakes in beekeeping practice. Since he is a man of intelligence, going about with his eyes open, he cannot fail to gain a better outlook on beekeeping in the State in which he works than is possessed

by the average beekeeper, and soon it is a better knowledge of local beekeeping than that possessed by the best of beekeepers. There is no other education in beekeeping that even approaches extension work—for the man who does the work. Now as he meets other beekeepers he can not fail to pass on this additional knowledge. He may be likened, whether he likes it or not, to a sponge, going about taking up knowledge, squeezing it out at each meeting, but taking up a bit



Virginia beekeepers who listened to Hawkins.

more than he gives out each time. His meetings ought to, and do, become better as he goes on with his work. It is not so much because he was a beekeeper before he entered the work that he can be helpful, but it is especially because he has better opportunities than any one else to get information on bees that he can help others. As men differ, so do extension men in their ability to grasp facts and pass them on to others; but there are none of these men who have the false idea that they can get without giving and they are truly missionaries in spirit. In just the same way inspectors and state beekeepers have the chance to grow. That is why all these men can do for beekeeping and beekeepers what journals, books, bulletins, and even the efforts of beekeepers themselves cannot do.

The conclusion from all this is that the beekeepers of the country realize fully the need of mutual education, and it is to be hoped that they recognize the fact that the extension men have something which will help them in their apiary work. Any beekeeper who thinks that he can gain nothing from meeting with his fellow beekeepers, or who thinks that he has "secrets" which should not be divulged to other beekeepers, has much yet to learn.

Seven Extension Short Courses.

Among the meetings recorded above there were seven extension short courses, planned especially for commercial beekeepers. As has already been told in the journals, these lasted from Monday noon to Saturday noon, and it was not planned that these should be picnics. They are a rather steady grind,

and a beekeeper who attends all the sessions does a hard week's work. That the beekeepers desire this type of work is attested by the fact that the average enrollment at these schools was about 100, and there is a demand for more such schools in the future. The Bureau will be glad to keep on with this work so long as it meets a need and so long as the beekeepers continue to support the work so finely. Several of these schools are already scheduled for the coming winter. Of course, the courses are not attractive to, or planned for, amateur beekeepers, for the man with a small interest in beekeeping does not care to take the time for the courses. As is well known, the Bureau does its work in beekeeping on the assumption that the future growth of beekeeping in the United States should—must—be along the lines of making more commercial beekeepers and not encouraging those beekeepers who are satisfied with a few colonies.

Other Agencies Advancing Beekeeping.

Great credit should be given the inspectors, the state workers at the agricultural colleges, and others who have seen the need of getting the beekeepers of the country together. If the extension men can help further in this work, and if they can keep right on giving advice and help to those who are trying to make their beekeeping better, and if they can add their efforts to those of all



They came together in Montana to hear Sechrist.

the other agencies looking to the upbuilding of beekeeping as a commercial industry in America, then the day of better things in this industry is not so far distant. None of this work can be done without criticism, and there are always those who see utter annihilation of the beekeeping industry in any effort for its advancement. Fortunately those who wear these dark glasses are being slowly converted to a realization of the truth that beekeeping cannot stand still without going back, and the number of progressives in the trade is steadily and rapidly increasing. It is hoped that the number of beekeepers who meet with their fellow beekeepers during the next year may be double that of the past year; if this is the case, then the good accomplished will be multiplied many more than twice.

Washington, D. C.



ANNE LESTER AND DADDY LOWE, BEEKEEPERS



By Grace Allen—Chapter IX

ANNE LESTER did not leave the Lowe farm, as she had written her brother she planned to do. The protest she had naturally expected broke so overwhelmingly that there was no chance to overrule it. Quite evidently the Lowe family wanted her to stay. So, as she did not need to go and was happy there, she took them at their word, with a simple faith born of her own fine honesty, and stayed.

October came swinging across the earth like a wave of gold, setting Anne's young heart afire with its flaming beauty. Day after day she and Shep took long rambles thru the countryside and over the hills, bringing home great bunches of goldenrod or delicate aster or scarlet maple boughs. Or she sat reading, thru long, quiet, shining hours, stopping often, wondering, looking off across the autumn earth, letting the mood of it sink in.

"You know, Miss Anne," young Jack Lowe remarked one afternoon, as she came hurrying up the steps just before supper time, "I thought you were going to live here while Bob was gone."

"Well, don't I?" she challenged, turning back in the open door, cheeks like the bright burden of autumn branches she was carrying.

He shook his head mournfully. "You do not. You eat and sleep here, but you live in some mysterious place outdoors."

"Mysterious nothing," Anne laughed. "I'm the least mysterious person in the world. I've been up in the orchard this afternoon, reading Keats to Shep."

Jack groaned. "Why the orchard?"

"There's a lovely view from there, and—"

"I thought you liked Dad and the bees and things like that."

"I do."

"Then why Shep and the orchard?"

"They're things like that."

"Maybe so. But why not occasionally read in the yard, to Dad and anyone else that wants to listen?"

Anne hesitated. She honestly did not know herself why she had avoided Jack so much lately; she certainly didn't dislike him. "Perhaps I'm fated to follow Shep, the way Cadmus followed the cow," she finally laughed.

"Then someone's got to reason with Shep," said Jack.

Anne stepped quickly out on the porch, and handed him her armful of autumn beauty. "Please put these in the big urn for me," she said gently, "over in the corner of the dining room. I have to freshen up for supper."

The next morning, as they all stepped out on the porch after breakfast, up came Shep, wagging his tail and laughing at them all

out of his expressive collie eyes. "What's this, old fellow?" asked Mr. Lowe, leaning over to look at something tied to his collar. "Here, Anne, it's for you. Looks like a letter."

With a puzzled look, Anne untied and read the note. Then she laughed merrily. "It's from Shep himself," she explained. "Listen. 'Dear Miss Anne: I don't believe you always understand my tail-wagging, so I am trying letter-writing. I don't want to go to the orchard or on the hills today—it's too far. Won't you spend at least the morning under the maples by the house? Please. And I hope you'll read to me, as usual. Devotedly, Shep.'"

Anne took the dog's head between her hands and turned his face up. "I am very sorry, Shep," she said, gravely. "But I have an engagement with Mr. Lowe, Beekeeper, for this morning. Will this afternoon do?"

"Where are your manners, Shep?" demanded Jack. "Answer the lady. Say, this afternoon will do perfectly, Miss Anne. Say it, sir!"

Shep wagged vigorous delight at the attention received. "Gone back to tail-wagging," reproved Jack, "in spite of Keats and the correspondence course."

Two hours later the old beekeeper and the girl were starting their last examination of the bees for that season. Carefully they looked into the brood-chamber of every hive, working together again, that the wisdom born of many years' experience might judge the condition of each colony. At Anne's request, he talked as they worked.

"They are running about as I thought they would," he said once. "Our fall flow was not very heavy, yet heavy enough for most of the colonies to put away plenty for winter. A few have something to spare, and we'll draw on those for the ones that lack. Some years I can take off a little surplus from boneset and aster; occasionally I have to feed, when they fail completely. This is just an average year."

"Well, Daddy Lowe, I know you plan on 30 pounds of honey for winter. Please show me just how you decide how much to leave."

"A full-depth comb, sealed solid, has about five pounds of honey; a shallow, nearly three. That is the basis. I used to weigh the hives, after weighing empty equipment of the same size. But that was when I wintered in one chamber. Now that I use two stories or one and a half, weighing isn't so easy. Neither is lifting the hives, to estimate the weight. So I usually look thru each one. This way I can be sure that each one has, not only enough stores, but also enough bees, and of course a queen."

He was opening a hive as he spoke. "Now," as he set out two combs, and glance-

ed quickly at the others, "I'd say about 20 pounds here. Wouldn't you?"

Anne nodded, keenly observant and attentive. "If you don't count the unsealed, scattered around. How about that?"

"That doesn't help much towards actual wintering. Sealed stores are the thing to count on. Now we'll look in the lower chamber, tho usually the bulk of it is above. Two practically full combs, and sealed honey over the tops of several others. Fifteen or eighteen pounds down here. Between thirty-five and forty altogether. We'll leave it all, tho I'll make a note that we can take out a little if necessary."

Another hive had the upper story nearly full and a generous abundance in the lower. "We'll take away part of this," said the man. And he put the extra combs, heavy with their sealed treasure, in an empty super, closely covered, to be drawn on for those that might need.

Still another he estimated at 24 or 25 pounds. "That would probably do," he said. "It would more than take them thru the actual winter. But that's not enough to consider. I want to take them thru fruit bloom. Suppose we have an early warm spell, and they start rearing a lot of brood, then there comes a long, late, slow, cold, rainy spring."

"Oh, what a spring!" shivered Anne.

"Then they'd starve, likely, or at least sacrifice part of the brood. They're going to get an extra boost right now. I want them all heavy. If the extra honey gives out, we'll fall back on sugar syrup."

"I want to ask about feeding the syrup, Daddy Lowe," Anne interrupted. "I know you feed it in friction-top buckets, with the tops perforated. And make the syrup of two parts sugar to one of water, and feed it a little warm. But how much do you give? I mean, what proportion of syrup to the needed honey?"

"One pound of sugar for each pound of honey required," he answered.

Then they came to a colony that was queenless. "And what do we do with this, Daddy Lowe? How can we requeen it so late?"

"We aren't going to try to requeen it. We are going to unite it. Late this afternoon, after the bees are all in—or some cool day would do as well, just so the bees aren't flying—we can set it quietly over some colony that has a queen, with a sheet of newspaper between. They will gnaw thru the paper and unite without any trouble."

And then came one or two weak colonies. "This one might winter all right," the man said, "reduced to a single story and then contracted to about eight combs. Sometimes I do that, putting a division-board on each side, with chaff or dry leaves to fill out, and a chaff tray above. But I figure they are

apt to be weak because of a poor queen. So I usually kill the queen and then unite them. That's what we'll do with this one."

"About how small does a colony have to be for you to classify it as weak?" Anne asked thoughtfully.

"Look down in this brood-chamber. You see these bees don't fill out their whole hive, as the others have done. They are covering only about five combs. I call that small a colony too weak to be worth wintering."

So on down the sunlit rows they went, the bees humming gently around. "There is still a little aster coming in," Mr. Lowe remarked. "I like to make this examination before the flow is quite over, as there isn't such danger of robbing. Tomorrow morning we'll start putting on the upper packing, and contracting entrances."

Anne smiled. "At last the circle begins to close on my own experience. Last spring I helped take off those shallow supers of chaff. They had burlap tacked across inside, and rested on queen-excluders that were turned upside down over the bees. And we found no moldy combs at all in those hives, while there were some very bad ones in the few colonies you had left under sealed covers. Oh, I remember! And then there were the big packing cases. Four, weren't there, or five?"

"Five. I'll get those set up this week, too. It is true I didn't see much advantage in the big case compared to the top packing. Tho they may have used less stores. But the quadruple winter packing case seems to have struck a new note in progressive bee-keeping, and I'll ultimately put all my bees in them, if they really pay—in this locality. Anyway, I shall try these thoroly, for several successive winters. Then if they shouldn't make good, I won't get any more."

A little before noon, the vivid blue and gold noon of October, they left their work and started for the house to dress for dinner, the good old-fashioned midday meal of the country. As they crossed the porch, Anne stooped to pat Shep. And there, tied to his collar, was another note! She smiled, waiting till Mr. Lowe had gone in. Then, alone, she read it.

"Dear Miss Anne: I have persuaded Jack to come to our party under the maples. Persuaded, mind. And he especially likes Kipling's stories. He also likes that blue dress you wore yesterday. Loyally, Shep."

When Anne came downstairs, she slipped out to an althea bush near a particularly friendly maple tree, and there she hid a volume of Kipling's "Plain Tales from the Hills." Then she went on in to dinner, looking like a slender, starry-eyed young Quakeress, in a dress of soft dove-gray, with white at the throat and wrists. And she carried, conspicuously, the magical poems of John Keats!



REFLECTIONS OF A BACKLOTTER

Wintering Discussed by One Who Knows Nothing About It

This bee business, in which I am now engaged to a small or less degree, must be one of the most fascinating businesses in captivity for nobody ever quits it. The books tell me that there are nearly a million of us, but we all keep ourselves hidden in a mysterious way from the uninitiated. Until I bought my bees I never knew that the town is full of beekeepers, but now I am of the inner circle and get the high sign from the whole crew.

The bee business is a sort of fraternity. We have our meetings, informal it is true, for we are not yet organized as the fellows in the next county are; but we meet in the shops of members at irregular intervals, talk bees until you would think that we were talked out, and still on the next Saturday afternoon or whenever we get together there are just as many things that have to be discussed. That is the way of the beekeeper.

But I've been reflecting on the bee business, and not knowing anything about it, I feel qualified to express an opinion. That is another beauty of the bee business, or maybe I'll think it a disadvantage when I have been in it a bit longer. Anyhow that is the thing I want to talk about.

Of course, I read the journals—all of them. They are all good; but some are better than others, as the Colonel said of whisky. But, not having been a beekeeper long, this thing of talking when you have nothing to say still weighs on me. As I said before I am not qualified to kick, but being a beekeeper, therefore I do.

I have noticed in my reading of the bee journals that it is usually the man who is guessing that gets the space. The man who knows, who has had the experience, does not seem to be the one who has the floor. I wonder why. There are in the United States a lot of fellows who know all about the bee business; if there are not, then there ought to be. I think there must be. Yet when I read the journals (as I said before, I have not been at it very long) I am inclined to believe that the fellows who are doing most of the noise-making are not the fellows who will be followed by me, for I hope to be just as thoro a bee crank as the rest. I'm in this game for fair!

But maybe I'd better tell you some of my troubles, and then you can see where I'm trying to get off. I, like a darn fool, bought my bees last fall. Yes, I know better now, and for once the journals were right, for on one point they do agree. I should have

bought them in the spring, last spring I suppose.

Well, the first thing was to know how to get these bees lined up for winter. First I read about the quadruple winter cases that the government fellows are advocating, as well as a lot of other fellows. They sounded good, but there was the trouble that I had five. What was I to do about that? Finally I decided that the quadruple case is intended for the big fellow who has so many that if two or three are left out in the cold he need not count those.

At last I decided, not having gone very far with my reading, that I would pack four of them in one case and then hunt around for a way to fix up the other one. That was easy. The next thing was how to make the case. First I got the government bulletin which says that I must pack on the bottom, since so much heat is lost there if that packing is omitted. Then I read that away up in Canada they say that no packing is needed on the bottom! So I decided that since I am a long way south of Canada I would leave off the bottom packing, government or no government.

Then I had to decide how big to make the cases. Should I have two, three, or six inches of packing on the sides. The government fellows seemed to think six was about right for the sides. Next I read that there is danger of putting on too much. Just why I could not find out. Then I re-read the government bulletin and they said that it is impossible to put on too much! Being south of Mason and Dixon's Line, I decided on two inches.

Then how much on top? I'll not worry you with all the details of what I went thru on that subject, except that I finally decided on four inches.

But the thing that did get my goat was what they call upward ventilation. Should I leave a place for the moisture to escape? The government bulletin says that if I pack heavily enough I'll not need to allow for condensed moisture for the simple reason that there will not be any. Well, I guess I packed enough, for I followed the advice of a fellow who shall be nameless, so I did not leave an escape for moisture. I wish I could get my hands on that fellow. I said a while ago that nobody ever quits the bee business. He would!

To make a long story short, I lost three of the four colonies in that case. The combs were mouldy, so there must have been some moisture there. The bees died of dysentery, so I guess it was not very warm in there. The whole business is as sad a lot as I have seen for days. Yet I followed the advice of the experts.

Then I had that other colony, and some-

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thing had to be done about that. The editor of one of the bee papers came out with a plan that listened good. I was told to turn my frames up on end, pack them in a thin box with a little sawdust around them and save myself all the trouble of making a large case. Here indeed was an authoritative statement and this was just what I was looking for. Me to the mill for a box! I didn't find it very easy to make; but finally I got it fixed up and after a few objections on the part of the bees I got them packed. I had to buy a new hive body to pack them in; but I suppose I can use that some other way some day, tho I've been trying to figure out how you can keep your empty combs during the winter in hive bodies, use the same hive bodies for making outside cases for the little box, and not buy new ones. That is one of the mysteries of beekeeping that I have not yet been able to master. I am, as I said before, green at the bee business.

Then when March came I took a look at this little case. It was full of brood, so there was nothing to do but unpack it and give the bees more room. I did. Just about as I was getting the frames right side up in a regular hive, Friend Wife appeared to remark that the government bulletin says that the bees should be left in their cases until time to put on supers, unless the swarming season comes on.

"Well," I said, "How in Tom Walker can I do that? These bees are crying for room right now."

"Maybe the swarming season is on," quoth Wife.

This was a stumper for me, so I left the bees where they were and went to the telephone and called up Jones. Jones is an old hand at the business, and really he is to blame for my getting into the game, so he has to bear a lot of questioning. Being fully and absolutely assured that it was not time for swarming, I went back to the job. Fortunately it was a warm day, and nothing happened in the way of chilling the brood.

But the next day it was cloudy, and the next night it cleared and got cold. Every time I shivered I did an extra shiver for the bees out there in a summer coat. It stayed cold for over a week, and, even if I am new in the game, I had sense enough to let those bees alone. When it did warm up I was at those bees as soon as I could get home from the office to see how they had fared during the late unpleasantness.

The bees were still there. Just how many may have died I do not know, for I didn't know them well enough yet to call them all by their first names. But there were a lot of dead ones on the floor. That was not the worst of it; there were a lot of the brood chilled. The long story about that hive may

be shortened down by saying that it did not recover from that chilling until after the honey flow was well over. I guess it cost me over half the crop, but it was cheap tuition. I know better now.

So my experience of the first winter was not what you might call a success. Three out of five gone; the other two weak. I bought some more last week and now have ten, so I am in the ring for keeps.

I talked this winter business over with the fellows at the last informal meeting of the Ancient Order of Bee Cranks and (would you believe it?) not one agreed with any one else as to the best way to winter bees. Now I'm a beekeeper and quite willing when in Rome to burn Roman candles. If it is the proper paper to decide these things by arguments, all right. If one should accept the advice of the big bugs without question, all right. If we are to decide every fellow for himself, all right. That seems to be the game.

But I've been worried a lot about this. As I said, I'll do the correct thing in the bee business even if I have to buy a new lot of colonies every spring, but my old habit of asking for a reason exerts itself in spite of my best efforts. So I've decided simply to tell you what I have done, to renew my pledge of loyalty to the fraternity, and as a last effort to say something, after which I'll slide into oblivion.

Why do all these fellows tell me how to winter my bees, when most of them are not able to give a single valid reason for the thing they advocate? Why do they say that no packing is needed on the bottom, when they have no data to back up any such statement? Why do they tell me that there is danger of too much packing, when not one of them can tell me what happens to the bees when they get too much? Why was that method of putting bees on their heads put in the bee journal when it was almost certain that there would be a cold spell after the packing had to come off? Was that a part of the joke column that had been misplaced by the printer's devil? They all tell us that the bees are wild animals that live just as they do in hollow trees, that they are not domesticated. Then why in Tom Walker, to whom I have before referred, don't they find out what these bees like best, and why don't they try to give them the conditions that will allow them to do their very best? I've asked these things, and now I'm ready to play the game according to the rules. Never again will I object. But it goes hard.

I almost forgot another question, that I intended to include before I took the oath. I put it to Friend Wife the other night, Why do the government fellows say that bees ought not be unpacked until swarming

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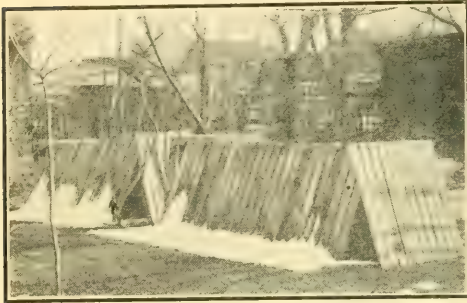
time, when it is certain that I had to unpack mine in March to give them more room?

"Maybe," replied Wife, "they didn't imagine that anybody would be as big an idiot as you are and try every fool idea that is printed."

Friend Wife is not a beekeeper, so you must excuse her.

Phil Franklin.

Maryland.



Chas. A. Black of Decatur, Ill., last winter used windbreaks around groups of hives.



ANOTHER STYLE OF PACKING

Demuth Plan Unsatisfactory for Practical Honey-Producers

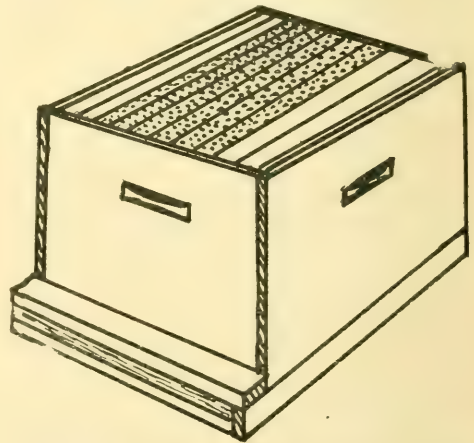
Since the Demuth plan of wintering bees in a shaftlike winter repository has been presented to the beekeeping fraternity by letter and illustration, I have spent much time in comparing that plan with the generally adopted ten-frame Langstroth hive and have tried to view their advantages and disadvantages from every side imaginable. Summing up the matter, I am inclined to the opinion that the Demuth plan will never be adopted by the practical, every-day honey-producer as a means of better wintering. For experimental purposes in a limited way it may give the scientist or the investigating beekeeper some satisfaction; but to the great majority of honey-producers it would not be profitable, as it involves too much unpleasant work for the beekeeper and unnecessary work for the bees in the fall and spring. The only advantage that can be claimed by the plan is the shaftlike shape of the winter nest, but nearly all other features are decidedly contrary to nature and to the interest of the beekeeper.

The operation in itself of sliding the frames into the inner case is to bees and beekeeper an unpleasant affair. It is a positive detriment to beekeeper and bees, as it completely upsets all their plans of arranging their winter quarters for which they have worked all summer in accordance with nature's dictates. If we examine the con-

tents of the inner case after the frames have been transferred, we find these conditions: The bees are stripped of the best part of their winter and spring supplies, and what is left is scattered in places where the bees would not store it, and none are found placed near the bottom-bars, where they would benefit the bees during winter. To overcome, or at least partially overcome this trouble, the transfer has to be made early enough in the season while honey is yet coming in, to give the bees a chance of supplying and re-arranging their winter stores; or else they have to be fed to make up the deficiency. The cake of candy may keep them from starving, but it has not the beneficial effect of natural stores of well-ripened capped honey.

In either case it is a disadvantage in one form or another to the beekeeper. If the transfer is made early, the hive with its appliances is so disarranged that the harvesting of surplus honey from a fall flow is entirely cut off; or, if made late in the season, bees are deprived of the privilege of restoring natural conditions, even if the owner resorts to feeding sugar syrup.

Then again the Demuth plan compels us to be satisfied with two inches of packing and a thin three-eighths inch inner case for winter protection. While this is better than



Brood-nest in center and division-boards at sides. Above this is placed a super with combs of honey in the center and division-boards at the sides.

no protection at all, it does not come up to the recommended six inches on sides and ends and from eight to ten on top, with a heavy one-inch outside winter case.

A much better way of transforming the flat ten-frame Langstroth hive into a smaller but deeper winter repository, which insures all the advantages of the Demuth plan and others besides and requires no extra fixings, is as follows:

Remove one-half of the combs that con-

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tain mostly honey, and fill the so produced vacancies with division-boards, leaving the brood-nest intact as much as possible (see cut.) Put the same number of division-boards and the removed combs of honey into an empty super and place this upon the brood-chamber, and the transformation is completed. All of the conditions are then in harmony with nature's design. The brood-nest has not been disturbed, the winter and spring supply of honey and pollen has been placed where it can be reached almost any time during winter, and no spring feeding is necessary. The capacity of the hive is the same as before, but has been reduced by one-half in width and doubled in depth, conforming to the desired shaftlike shape and allowing plenty of space for winter stores. If these should be deficient, if the removed combs should not contain the desired amount of honey, heavier combs can be substituted when the change is made.

The covering can be done in the usual way, either with a sealed cover, a chaff mat or loose chaff over a burlap blanket.

The regular winter cases can also be used the same as with the flat hive; but it may be necessary to provide an additional rim to make them deep enough. This arrangement works equally well with cases of one, two, or more colonies.

LaSalle, N. Y.

G. C. Greiner.



CAMPBELL WEIGHING MACHINE

An Easy Way of Determining the Necessary Winter Stores

In the autumn of the year one of the necessary operations of the apiary is to get the weight of each hive, and to know it, not to guess it. A young man said to me recently that when a hive is weighed one has to guess at the weight anyway. He meant that the weight of the combs as well as the weight of bees varied, the amount of pollen in the combs differed substantially, and even the hives themselves were not uniform. "True, all true," I said, "but there is neither wisdom nor common sense in guessing when that is unnecessary."

Right here the question might be asked as to how much an 8-, 10- or 12-frame Langstroth hive should weigh. I do not care to go on record in this matter, but the question is a fair one and without being arbitrary I will say about 65, 80, and 90 to 95 pounds respectively.

It is an undesirable operation to set each hive on a scale. J. W. Campbell of Lambeth drew my attention to a device for weighing a hive of bees without placing it on a scale or removing it from a platform. As seen in the illustration, it consists of a tripod which is placed immediately over

the hive. There are three claws connected by means of a ring at one end. These three claws hook under the bottom-board at the back and two forward sides of the hive. A spring scale connects the tripod and hive,



Campbell's device for determining requisite stores.

and there is a lever attachment by means of which the hive is raised from the ground and the weight obtained. Mr. Campbell is a successful and expert beekeeper, and he deserves every credit for his idea.

Brantford, Ont.

R. F. Holtermann.



TO PACK OR NOT TO PACK

Data from Which One May Draw His Own Conclusions

When I came to British Columbia in 1908 there was in all the region west of the Rocky Mountains only one beekeeper who packed his bees for the winter, so far as I have been able to learn, and he was and is the most successful honey-producer in the region. Everybody assumed me that packing was absolutely unnecessary in British Co-

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lumbia—that bees wintered far better without it; so I took their word for it, but with mental reservations.

On my first trip as a bee inspector I worked for months in a region where bees were run on the neglected plan, and I came across many things that made me wonder where I was at. In fact, the whole bee situation looked topsy-turvy. Suppose one of my readers were to go into an apiary of 20 colonies, and find, as I did, an apple box turned upside down being used as a hive; that the said apple box had a crack one-fourth of an inch wide between the two pieces forming the bottom of the box (that was now the top of the hive); that in this makeshift hive he found a mere handful of bees doing their best to survive on a clump of combs about nine inches square and as many deep; and suppose he were told that the average rainfall that winter had been five inches a month, that several times the temperature had fallen to 11 below zero for several days at a time, and suppose he afterward found that miserable cluster filling the whole apple box with comb and brood, and that it was transferred to regular combs in August after the honey flow was over, and then sold for ten dollars—why, that reader would (or at least might) jump to the conclusion that packing for winter in British Columbia is absolutely unnecessary, and a perfect waste of effort and good material. But in the same apiary I found several hives where thousands of bees were lying dead on the bottom-board and plenty of sealed stores in the combs. Things of this kind jar a fellow; but they are just one more instance of the old saying that it is very risky to generalize from one experience.

I am writing this 80 miles from my home, so do not have access to my old notebooks, hence must quote from my last winter's results. The winter was the mildest by far that we have had since that of 1914-'15, so it shows less difference between packed and unpacked hives; but the figures are interesting all the same. My bees are prepared for the winter at the end of September, all getting about the same amount of stores. They are entirely uncared for until about the end of April, as I never see them between the two dates. On first inspection I make note of the amount of frames that contain brood, and also estimate the quantity of sealed honey on hand, both items being entered in my notebook while at the hive. At my leisure I work out the statistics by queens and packed and unpacked hives, with results that are worth learning.

The following statistics cover last winter, the inspection being dated April 20:

Packed Hives.		Unpacked Hives,	
Packing on sides and top.	but with top protection.		
Brood	Honey	Brood	Honey
5 $\frac{2}{3}$ frs.	20 lbs.	4 $\frac{1}{2}$ frs.	12 lbs.
Average for the whole yard, 5 frames of			

brood and 14 pounds of honey. On the face of it, it is evident that it costs me 8 pounds of honey more to winter in unpacked hives; and since I sold my crop last year at 20 cents a pound wholesale, the cash extra cost was \$1.60.

Now, all that has been given is plain sailing; but the moment we begin to go into group comparison we get up against all kinds of vagaries, yet the statistics are well worth thinking about.

	Packed age. Brood	Honey	Unpacked	
			Brood	Honey
Goldens	5 $\frac{1}{2}$	14	6 $\frac{2}{3}$	19
Italian	3 $\frac{1}{2}$	4	5 $\frac{2}{3}$	10 $\frac{2}{3}$
Carniolan	6 $\frac{1}{2}$	25	4	15
My own	5	17	4 $\frac{1}{4}$	14

One of my goldens is the top-notch of the yard. Last spring by the middle of May she had 30 frames covered solid with bees, and her colony had stored 40 pounds of honey and had drawn out in three days ten sheets of foundation and filled six of them with uncapped honey.

The winter preceding the last was a bad one in British Columbia. Our average loss was 40 per cent; but I got off very lightly. The difference between the unpacked and packed hives was very marked, but I do not have the actual figures by me. The weak colonies had a hard time to pull thru, even with generous helping of brood and stores from the packed hives.

In the past few years my persistent advocacy of packing for winter has won many converts, and I see some wonderful results in my travels. Brood in 15 Langstroth frames by the middle of May is not uncommon; in 12 frames is very common. We often get here the kind of colonies that eastern beekeepers dream about but seldom see.

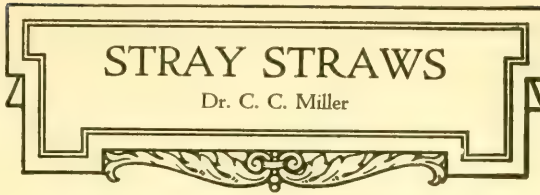
This spring I learned something that rather startled me. I found that between April 20 and 27 my bees consumed seven pounds of sealed honey, even with a little coming in from fruit bloom. Just think of that—one pound of honey a day for brood-rearing! Not so very long ago I was perfectly contented if I found four pounds of sealed honey in the hive on the first examination. Last fall I left 20 pounds a hive more than had been my habit, and this fall I will make it 10 pounds more than a year ago. But there is a difference in colonies. My best had 30 pounds of honey left, while my poorest had nothing.

My judgment is that in British Columbia packing pays. I also think quite a number of my queens will have successors before snow flies, as I can not afford to keep a strain that eats so much in winter that there is nothing left for brood-rearing in the spring.

F. Dundas Todd.

Victoria, B. C.

B. F. KINDIG is doing for Michigan beekeepers what might well be imitated in other States. He sends out periodically what he calls a "Beekeepers' Letter," containing information and advice, served up in very readable style, which will surely result in bringing him in closer touch with Wolverine beekeepers.



Dr. C. C. Miller

Speaking of M. S. Mendelson in American Bee Journal, Frank C. Pellett says: "It is his practice to leave about twice as much honey on the hives as will be needed in a favorable season. He insists that surplus left with the bees pays big interest, as it saves feeding in times of shortage and insures that brood-rearing will be continued at proper times, even tho no honey is coming in." Perhaps that practice helps to account for the tons of honey he gets from his 1,400 to 2,000 colonies.

"A strong force of bees at the right time" is a slogan much in use nowadays. Of course it's a good slogan; no one will make a mistake in acting upon it. But I suspect that many a beginner is worried to know just when is "the right time," and just how to make colonies strong at that particular time. The right time in one locality is not the right time in another locality. In any given locality "the right time" last year may be later or earlier this year, and I don't know of any rule by which the most experienced veteran can tell very much in advance when the right time is to be. Well, if your location is like mine—and I suspect the majority of locations are like mine in that respect—you needn't worry over it. I wouldn't give any large amount to be told just when the right time is to be, nor how to make colonies stronger at that time than at other times. Oetll's golden rule, "Keep your colonies strong," with emphasis on the "Keep," fits well in this locality. I don't know that I ever got a colony strong too early, nor had one too strong later on. So my effort is to have strong colonies as early as possible, and then to keep them so. However, I've no quarrel with the other fellow whose location differs from mine, only I have some doubt whether there are so very many of him.

That's stimulative reading the editor has given us, page 565, September Gleanings, about the Nevada comb-honey wizard. I take off my hat to Harry Warren as a man who does things. But don't all you youngsters get the idea that the proper thing for you is to double up colonies to increase your harvest. It may not work with you. What's best for one may not be for another. Alexander increased his crop by dividing; Harry

Warren does it by doubling. It may be that either course would lessen your harvest. If each of your colonies can be made strong enough for the

harvest, then you would only double at a loss. "Prove all things; hold fast that which is good."

* * *

"In adding empty supers we have no definite plan to follow. Sometimes we put them below the partly filled, and again above. The transaction just depends upon the amount of time we can spare. Personally, I am inclined to believe that the best method is to add the supers to the top." Thus says Harry Warren's foreman, Mr. Damon, page 568. But he immediately adds that he wouldn't put an empty on top of one completely filled. Evidently it doesn't seem easy to find any one plan that is always best; and the fact that good beekeepers differ as to practice would rather indicate that it doesn't matter much what plan we follow. Yet there are some points of importance worth considering. If a super is left at the bottom till ready to take off, it will be finished sooner than if higher up. Yet pretty certainly the beautiful white cappings will be darkened; and that's bad. If any empty super is placed under during a good flow, the bees will begin work in it sooner than if it is placed over. In the former case the bees are coaxed into the new super; in the latter case they are crowded into it, and that crowding tends toward swarming. Take two colonies alike in every respect, and on the one, A, let the empty super be added always on the top, so that each super on the hive is older than the one above it. On the other hive, B, let each empty super be put at the bottom, so that each super on the hive is older than the one below it. You may count that the first super will be finished sooner on A than on B; but, as already intimated, it will be darkened, and A would be in more danger of swarming than B. B would occupy new territory more readily than A, and so would be spread over more ground. Now, with a larger surface to work on, and with comb drawn out a little more in advance of its needs than is the case with A, don't you think that B will store just a little more surplus than A, somewhat on the principle that more is stored in extracting-combs than in sections? At any rate, if I were obliged to follow strictly one plan or the other, I surely would add the empty supers below. But I should rather not continue it at the tapering off of the flow, when it's a little uncertain whether any more room will be needed. At that time an empty may be given on top as a safety valve, and the bees needn't use it if they don't want to. Moreover, if you give an

empty below when it is no longer needed, the bees will not draw out the foundation, but merely pass thru the empty super to work on the super above.

Now, after what I've said, at the risk of being called inconsistent, I must confess that during most of my years of producing sections I always gave the added super on top. But not for keeps. Next time round, if another super was needed, I moved that top super to the bottom, and then gave a fresh super on top. I count that empty on top important. If I was belated in getting around, it was there ready for use. If the fastening of the foundation was faulty, the bees would fasten it before the super was put down, and when put down it would seem more home-like to the bees than an entirely fresh super. Also it served as a sort of shade-board, and to that extent helped against swarming.

* * *

Speaking of getting bees to clean up extracting-combs, J. E. Crane says, page 583, "to get the bees to do it right used to be my trouble; but if you will first place an empty brood-chamber over the colony and then pile the wet combs over this, you will doubtless 'secure the hearty co-operation of the bees.'" I have tried it, but it doesn't always work here, altho I may have bungled in some way. To get extracting-combs, and especially unfinished sections, emptied out without allowing the bees of more than one colony to get at them offers a problem worthy the inventive genius of some future beekeeper.

* * *

No. 14 was a nucleus with a laying queen, brood in two combs, a whole hive to spread in, and everything apparently in apple-pie order. On the same stand with No. 14 was No. 13, with pretty much everything all wrong. It was queenless and broodless, with so few bees as to be not worth considering. I took away its few combs, leaving not even a frame in the hive, and put on the cover. On a later day I opened No. 14, and found not a bee in the hive. Combs nice and clean, brood and honey, with not a sign of robbing; only there were no bees. I lifted the cover of No. 13, and found attached to it a nice cluster of bees. In the center of the cluster was a newly built piece of comb of perhaps three square inches. It had some honey in it, but no empty cells ready for brood, altho, as I found afterward, a laying queen was present. I took the deserted combs from No. 14 and put them in No. 13. Jarred the bees from the cover on the ground, scraped off the piece of wax and covered the hive, "and they lived happy ever after." Has any one any explanation for such a performance, or was it a case of just plain crazy? I give it up.

* * *

Drones from unmated queens are spoken of on page 602 as being dwarfed by being reared in worker-cells. Of course that doesn't mean that unmated queens do not some-

times lay in drone-cells, and then their drones are as large as any, and perhaps as good as any. Laying-workers have a decided preference for drone-cells; I wonder how it is with unmated queens. The workers appear to decide the kind of cells to be used by a mated queen, for they often prepare drone-cells outside a queen's beat. If the workers decide the kind of cells for unmated queens, I should hardly expect them to prepare drone-cells, seeing they already have too many drones. So I may be mistaken after all about unmated queens laying in drone-cells. [Yes, we have noticed in laying-worker colonies that, altho the worker-cells as well as the drone-cells contained eggs, the drone-cells often contained from 10 to 20 eggs while the worker-cells usually contained mostly one but occasionally two or three eggs. But altho in drone-cells more eggs are found to the cell than in worker-cells, thus possibly showing a preference, the entire number of drone-cells in the hive is so small in comparison with the number of worker-cells that by far the greater part of the drones hatching are from worker-cells, and are, therefore, dwarfed. The same, we believe, holds true of drone-laying colonies. In such colonies we have noticed entire worker-combs filled with drone brood. As to whether a drone-layer when given a choice in the matter would deliberately choose either drone or worker comb in preference to the other, we do not know, but shall put it up to the bees and learn the answer in a few days.—Editor.]

* * *

Iona Fowls, you say, page 602, "priority might give a man the apparent right to a location, yet he perhaps be a renter and a poor beekeeper at that. Later a man might buy a home in the same locality and wish to keep bees. It would be manifestly unfair to deprive him of this privilege." But isn't that sort of thing going on all the time with farm lands without being called unfair? Anyway, you say "the puzzles are worth solving," which shows you're on my side of the question, and I'm so glad of your company. The puzzles have been solved in other countries, and surely what others have done we can do.

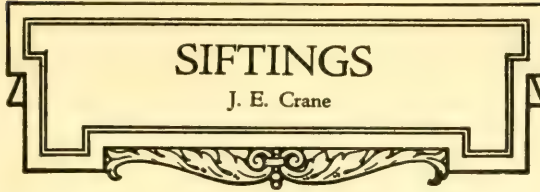
* * *

I wish it might be settled definitely whether or not it is a safe thing to give unsealed brood to a colony having a virgin. Some think it's all right; others, especially in New England, are dead sure it's all wrong. I've lost virgins when I gave unsealed brood, but how do I know the brood was to blame?

* * *

On page 602 it is said no harm comes from pigs being occasionally stung; which is probably true. When I came to Illinois in 1856, rattlesnakes were plenty (I killed eleven the first summer), and it was said rattlers didn't hurt pigs because their hides were so thick. I wonder if that doesn't make them safe from bees.

IT will be a great relief to many beekeepers to read the short editorial on page 561, September Gleanings, and learn that it is possible to winter bees on a good grade of brown sugar. I have had many inquiries as to the wisdom of feeding it. Some years ago so much was said in Gleanings in regard to the value of raw sugar in building up colonies in the spring that I did all my fall feeding with it. While I do not think bees wintered quite so well as when fed granulated white sugar, they wintered fairly well. Bees did not take it quite as readily as a syrup made of white sugar, especially late in the season. Care should be taken not to feed too heavily, for if much is left in the brood-combs in the spring the bees are liable to carry it up into the supers and injure the appearance as well as the quality of the section honey.



quite evident that no one man or group of men will be able to settle all beekeeping problems for the whole fraternity. Altho he will continue to receive helpful suggestions each beekeeper will be obliged to think for himself.—Editor.]

* * *

Speaking of large and small hives, E. R. Root on page 577 tells of the experience of Zimmerman and Crowder of Pasadena. He says, "The twelve-framers hardly swarm at all, while the ten-framers swarm—well, just as all ten-framers do, right in the same yard with the same honey flow and the same management." We have run our home yard the present season for extracted honey and could notice a wide difference in the swarming dispositions of colonies in hives having but one eight-frame super and those having two or three such supers.

* * *

Isn't that description of Italian bees robbing, given by T. W. Riggs in August Gleanings, rather imaginary? We take off a large share of our section honey and set the super down by the side of the hive for several hours for the bees to run out, and we have very little trouble so long as there is a good supply of nectar to be had in the fields; but when that fails, look out.

* * *

I should have liked to attend that circus at Medina when that car of oozing, dripping honey arrived. I have had experience enough in such matters to give me a fellow feeling for those who had the care of the honey. But I have been wondering how many that have shiftless ways of shipping honey will ever read the account given on page 562. They can't afford not to read it.

* * *

"Honey as a Breakfast Food," is a capital idea. While some are trying to increase sales by new methods of putting up honey for market, others are suggesting new uses for it. I am told by travelers that it is almost always found on breakfast tables at hotels in Switzerland. Honey has real value as a food as well as an appetizer. I prefer it myself to butter. It is good if mixed with peanut butter, and better still if mixed with the good old-fashioned dairy butter. See Our Food Page, in the September number of Gleanings, page 589.

* * *

I had an opportunity last week at our county fair to meet a good many beekeepers. Nearly all reported a short crop—from one-half to three-fourths that of last year. A few reported as much as last year.

It has been thought doubtful if "chunk honey" could be made a success here in the North, as the honey poured in around the combs soon granulates, making it unsightly and unsalable. A friend from the north part of the State called on me last week and said he was putting up in chunk form nearly all of a large crop of honey. This is how he does it. He gets his surplus in shallow frames, cuts it out, and fits it into ten-pound friction-top pails. Such a pail will hold six pounds of combs. He does not pour any extracted honey around the combs, as he says they ship well without it. He claims that the demand is very great for honey put up in this way, and that he has no trouble in disposing of his entire crop.

It is interesting to note the new ways of putting up comb as well as extracted honey. On pages 568 and 569 Miss Dorothy Quincy Wright tells in a charming way how she puts her honey in small paper packages. While my friend Darby puts his comb honey in ten-pound tin pails, she puts her honey in pasteboard boxes. This method is well adapted to those who have moderate-sized yards, with time and ability to do fine work.

* * *

J. A. Green, page 585, gives some very good reasons why an eight-frame hive may be better than a larger one. Many kinds of honey outside of the heat of the cluster of bees during winter are liable to granulate. If the bees do not tear this honey out, it becomes a nuisance; and, if they do dig it out, it is likely to be largely wasted. This shows the necessity of every beekeeper's thinking for himself and not taking what somebody else says as the best way. [Yes, it is quite apparent that big hives are not for everyone. D. D. Stover of Penn. Miss., who was in Gleanings office last week, said, "Do stop pushing the 13-frame hives.

We don't need any bigger hives. Our ten-framers are all right." Some others from the South have also expressed themselves similarly, so that it is

DID you ever grow so tired of planning and cooking three meals a day that you felt like telling your family that you simply could not prepare another meal, that you never wished to see the inside of a kitchen again, that this eternally recurring three meals a day took all the joy out of existence? A woman who would deny such thoughts, after keeping house 15 or 20 years, is either a saint or not a truth-teller. I shall have to admit that altho ordinarily I enjoy housekeeping, particularly the cooking end of it, there are periods when it seems like mere drudgery, consuming so much time and strength that could be spent profitably and pleasantly in hundreds of other ways. If this is true of a domestically inclined woman, what must be the prevailing state of mind of the woman who has no love for cooking or kitchen work at any time?

When a woman loses enthusiasm for her work she needs rest and change, of course. Just here, let me remark that if more husbands realized the housekeeper's need of change of scene and work there would be fewer women who say "they just hate housework."

It also tends to keep up a woman's enthusiasm for her work to read an interesting article on household management, food values, or cookery. In my own case it makes little difference whether I agree with what the author says. Reading of other women's ideas stimulates one's mind to work out original helps and short cuts, and a page of attractive recipes lures one into the kitchen.

Another thing which keeps up a housekeeper's enthusiasm for kitchen work is something new in the way of equipment, even if it is nothing more than a nest of convenient mixing bowls, new muffin pans, or even a good, sharp paring knife.

Several months ago I told you about a tiny room or breakfast alcove, designed to save the housekeeper's steps. This month I am going to tell you about a convenient and inexpensive little kitchen. For years I have longed to work in a kitchen where everything needed in cooking hung in plain sight at just the convenient height; but our kitchen, built some 20 years ago, is the conventional sort with all equipment hidden behind cupboard doors, and I lacked the nerve to have it all torn out and made over.

Early this summer, when we bought a cottage on the banks of a pretty little lake a few miles from our home, I made up my mind to try that little kitchen of my dreams. The cottage was kitchenless, as the former owners had taken all their meals at a hotel. We therefore put in a partition,

OUR FOOD PAGE

Stancy Puerden

dividing one large bedroom into two rooms, each about 8 feet wide by 10½ feet long, using the corner room for our kitchen. Between this and the liv-

ing room was a tiny room which had been used as a lavatory and which we use for our refrigerator. A small closet also opens from the kitchen, and we added a very small screened porch, enclosing one end to make a small storeroom for such foods as are not kept in the refrigerator. This arrangement also affords me a chance to try a dining-roomless house, as we eat in one end of the living room, dropping the leaves of the dining table and pushing it back against the wall behind a screen when not in use.

To return to the kitchen, which I frequently do actually as well as on paper, notice the compact and convenient arrangement of refrigerator, cabinet table, sink, gas range, and storeroom; but the most convenient part of all, the shelves, being above the table, sink, and range, cannot be shown in the plan, so I shall have to describe them.

The cabinet table, being directly in front of a window, has plenty of light and air. It contains bins for sugar and flour and drawers for cutlery and towels. At the right, between the door of the refrigerator room and the window, at a height of 4 feet, 6 inches, is a shelf, 2 feet long by 6 inches wide. On this are flavoring extracts, spices and condiments, cornstarch, soda, baking powder, cocoa, and dry yeast. From a row of little brass hooks at the edge of the shelf hang a glass measuring cup, aluminum measuring cup, measuring spoon, mixing spoon, egg beater, biscuit cutter, cookie cutter, cheese grater, and lemon squeezer. As the ice box with shortening and milk is so close at hand I can mix practically anything without taking more than two or three steps, and a high stool being kept under the sink, I can work sitting if I choose. And on account of the view of the trees and green grass from the window it is much pleasanter to work at this cheap little cabinet table than at the regulation cabinet with upright cupboards, and just as convenient.

At the left of the window casing, over the sink and drain board and clear to the end of the room extends another six-inch shelf at the same height as the first-mentioned shelf, and ten inches above this shelf is another one, ten inches wide. This shelf extends not only to the end of the room, but around the corner and across the end back of the gas range to the outer door. The upper shelf holds mixing bowls, milk pans, baking pans of assorted shapes and sizes, cooking utensils, bread mixer, etc.; and on the part back of the little gas range are kept package breakfast foods which should

be in a dry place. This is also a fine place to put bread to rise.

On the lower and narrower shelf are kept, over the sink, soaps, cleansing powders, steel wool, etc.; and farther along at the right of the range are the teapot, coffeepot with their respective canisters, salt shaker, pepper box, and some of the smaller cooking utensils.

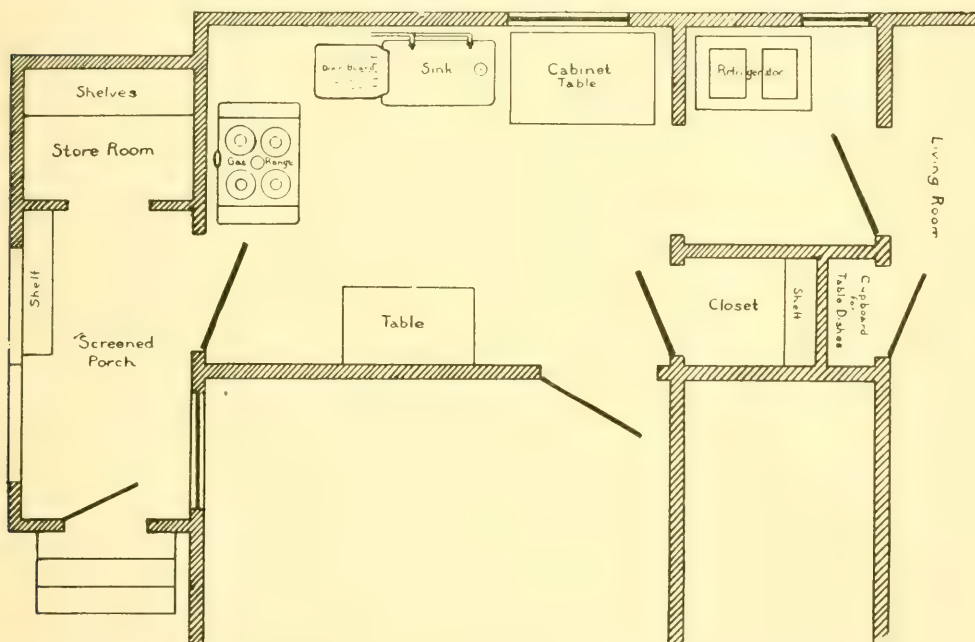
This lower shelf is studded with more little brass hooks, $3\frac{1}{2}$ inches apart from which hang, in the places where they will be most convenient, soap shaker, dipper, spatula, perforated spoon, pancake turner, strainer, and small utensils.

The little closet contained one shelf, ten inches wide, six feet from the floor. Under this was a flat molding in which were wardrobe hooks. We put in another molding lower down and added many more strong

ture. The table dishes and silver are kept in a built-in cupboard just inside of the living room.

Now, after working in a conventional kitchen with everything behind closed cupboard doors and after a few weeks' experience in my little cottage kitchen, I am ready to admit that I can work more rapidly and easily where everything is in sight and at a convenient height to save stooping. Of course in a house which is occupied the year around there would have to be more storage space; but for a summer vacation home I find this arrangement ideal, and it could easily be made suitable for an all-the-year-around home by building a larger screened porch and storeroom. A larger gas range with the side oven and broiler would also be more desirable for a winter home.

Many housekeepers do not realize how



Plan of a convenient kitchen in which everything needed in cooking is hanging in plain sight.

brass hooks. On these are hung frying pans, assorted sizes, and some of the larger kettles which did not look well on the kitchen shelves. It is really surprising how many utensils are made to hang from a hook. The manufacturers evidently designed them for hanging, and we housekeepers have been in the habit of nesting them one within another behind cupboard doors. In this closet there is room enough for broom and other cleaning implements and an ironing board.

In the little storeroom one of my boys put up a couple of broad, convenient shelves and a narrow shelf on the open part of the screened porch. A little table at the opposite side of the kitchen from the working equipment, a chair, a high stool, and a waste basket complete the kitchen furni-

much it lightens work to have the sink and work table of the proper height. For my height, 5 feet $5\frac{1}{2}$ inches in my shoes, I find $31\frac{1}{2}$ or 32 inches enables me to work and stand erect. A shorter person can also work conveniently at that height, but a taller woman should have the table and sink proportionately higher. Remember if you wash dishes in the sink to have the bottom of the sink the same height as your work table. Plumbers do not like to install a sink at that height, but plumbers do not wash your dishes. Speaking of dishwashing, in my little kitchen the dishpan also has its appointed hook beneath the end of the cabinet table next to the sink while a wire drainer hangs beneath the drain board.

Many housekeepers are puzzled to know
(Continued on advertising pages.)

ONCE, many months ago, we talked about the word "amateur"; what it really meant and how it came to be, in the misty long ago when the needs of the people shaped it out of and into their young, growing vocabulary. Another word has been picturing itself to me these last few days, my fresh interest in it being due to a little incident told at a luncheon by a charming woman writer whom I know. It happened in the recent first registration of women as voters in Tennessee. One of the registrars in her ward, she said, looked much like a little hickory nut, and the other had a pet goatee. The Hickory Nut asked how long she had been living at her present residence. Eight years, she told him. "Where did you live before you moved there?" he inquired further.

"Paris, France," she said. Whereupon he looked so flustered that the Goatee came to his rescue.

"Write down Paris, Tennessee," he directed in an aside. (We have a Paris, Tennessee, you know, fully the size of a lady's pocket handkerchief.)

"She said Paris, France," the Hickory Nut insisted, in a hollow, unbelieving voice, and wrote accordingly. "And what," he continued funereally, with painfully distinct syllabification, "what is your a-vo-ca-tion?"

"I wanted to tell him, in all honesty, that I hadn't any avocation," my friend said; "but I knew he meant vocation, so I told him I was a free lance."

"A what?" gasped Hickory Nut, looking as tho he might possibly be registering Joan of Arc herself.

But Goatee knew better the ways and phrase of the world. "She means," he explained, "that she is a writer. She writes for a paper called 'Free Lance.'"

I thought that was funny, but it grew still funnier when I found out later that there used to be a negro paper published in Nashville called "Free Lance"! And my friend is so—so—well, so not that way, you know. (Yet I wish everyone might know how unswervingly, during the war, the finest of Nashville's white women, including this lovely woman herself, served negro soldiers at the Canteen, wrapped overseas Christmas packages for negro women, and supplied the present negro paper with Red Cross notes for their columns. And even as it was done in Nashville, so it was done thruout the South.)

Well, Hickory Nut's "a-vo-ca-tion" kept running thru my mind, till I began to wonder if there might be any possible justification for using it synonymously with vocation, as one's main occupation, instead of the only way I knew it—as a sideline. My interest was further challenged by the fact

Beekkeeping as a Side Line

Grace Allen

that in different conversations on the subject, I found one man who thought an avocation was a former vocation, something a person used to do before he did

whatever he was doing now; and a woman who thought the word applied only to the trades. So I went to the dictionary. While Webster didn't exactly back the Hickory Nut, he didn't exactly back me, either. He had room for us both in his first, second, and third definitions; tho he does reassure me by saying that the use of avocation for vocation is contrary to good usage.

But the thing that interested me most, and carried me on the wings of wonder and imagination away back into the long ago, was the derivation. I had never happened to think of it before, apparent tho it is. Take **vocation** first—coming down to us of this day thru the Latin **vocatio**, a bidding, a calling, an invitation, from **vo-care**, to call. Don't you see the poetry in it, and feel life itself pulsing thru it? We, too, speak of a person's calling, but do we think of it in the vivid way of those ancient people whose constant literal use of the expression actually made the word? Into their hearts and across their lives a call was sounding—some work called them and they followed it; that was why it was their calling, their vocation.

Can't you imagine their grave elders, the white-bearded patriarchs of a long-forgotten age, asking the different boys of that day, "What work is it that calls you, my son? Which of them all is calling to you?" And some sturdy lad must have said, "I hear the earth calling—I shall be a tiller of the soil." And another, "I hear the voice of fine gold ringing in my ears—I shall be a goldsmith." And one may have said, "There is a voice sounding from the potter's wheel—it calls me day by day; I shall fashion the clay into clean vessels." While still another may have heard the anvil's clanging voice inviting him to be a smith. Doesn't the thought of it all recall the old beautiful words?

All these put their trust in their hands,
And each becometh wise in his own work.
Yea, tho they be not sought for in the
council of the people,
Nor be exalted in the assembly;
Tho they sit not on the seat of the judge,
Nor understand the covenant of judgment.

* * * * *

Yet without these shall not a city be
inhabited,
Nor shall men sojourn or walk up and
down therein.
For these maintain the fabric of the world,
And in the handiwork of their craft is
their prayer.

Surely, too, some youth in those old days, even as also in these, must have said, "I

hear the very voice of God calling me. I shall be a priest and serve Him continually in his temple." Oh, these things that have called to men's hearts thru the ages! These callings the people have heard and followed! These vocations!

I think avocations must have come later, perhaps when the calling voices were less plainly heard amid the rushing clangor of a civilization growing constantly more complicated, and men had come to choose their work for its expediency or its profit rather than in answer to the summoning force of its appeal. For an avocation is a calling away, a distraction, some interest that calls our hearts away from the main work we have set them to—something that calls and calls, insistently, irresistibly, until we take it up as our very own secondary work, a lesser occupation, a something else to do that we can love and enjoy—a sideline that carries us merrily away from the steady and all too often uninteresting main line.

So I love to think that beekeeping is for each one of us either a real vocation or a real avocation; **the one work** that called to the hearts of those who follow it professionally—the one interest that calls away from other work those of us who claim it for a sideline, those of us who are most of the time merely business men or housekeepers or lawyers or railroad conductors. Indeed we, of all others, have heard with the outer ear as well as the ear of the spirit, the magic humming of an irresistible voice, calling to us from the apple blossoms of spring and the clover fields of summer or across the blue and gold sunshine of October, when goldenrod and aster are in bloom.

* * *

Here's the kind of letter that so often gets written to the daily papers all over the country, and sounds so convincing to readers who don't know any more about the subject, nor think any more thoroly or clearly, than the writer. It appeared a day or two ago in a Nashville daily:

"To the Editor of the Banner: Here is a ray of light which may prove interesting and probably helpful to your 'fair price' committee:

"On Aug. 27 I received, laid down in my house, postage and insurance paid, from an apiary at Aspen Hill, Tenn., ten pounds of first-class strained honey for 25 cents per pound, net. On the same day the Banner carried the following advertisement from a Nashville self-serve store: 'Honey, 5-oz. jar, 20 cents.' Undoubtedly the honey I bought at 25 cents a pound could have been bought at wholesale for 20 cents per pound, or less.

"This would show a clear profit of something like 300 per cent, for your retailer, which is going some, I think. Yet the middleman says he is not to blame."

Three hundred per cent profit! Poor Retailer! In the first place the Aspen Hill producer sold too low; every one around here is getting 30 cents in 5-pound tins, no

postage nor insurance. In the second place, the retailer almost certainly did not buy in bulk and bottle it himself. He undoubtedly paid a bottled price for it. In the third place, even if he had bottled it, that process would have cost time and labor (as it surely did cost someone); he would have had to pay, and pay high, for the little jars (as some one surely did pay); 32 glass jars against one tin bucket! In any other than a self-serve store, a clerk would have had to wait on 32 different customers to sell it; and in any kind of store, it meant 32 wrappings and 32 times to make change.

Don't you wish people would think thru a proposition, instead of dashing off public letters about 300 per cent profits?

* * *

On our upper back porch there are two water faucets and a sink. During the hot days of midsummer one little bee found this hitherto undiscovered water supply. Trip after trip she made to where the drops of water stood shallow and inviting on the smooth enamel of the sink. For days she came, and I called her Rebecca. To all appearances, she was as faithful and gentle as that other young Rebecca who took her pitcher to the well and found the courier of Romance there begging for a drink.

The only time my winged Rebecca acted unhappy was when hot water came pouring into the sink and the steam floated up and around. Then she would protest mightily, tho I do believe she was more puzzled than provoked—much as that other Rebecca might have been if her well had occasionally sent up clouds of steam and buckets of hot water. One day one of the family threatened her. "If this pesky bee doesn't quit hanging around here, she's likely to meet an untimely end," I heard. "Why, she's not pesky at all," I protested. "That's Rebecca; she comes every day."

First there came a laugh, our friendship and her name having been until that moment unconfessed. Then came a low solemn warning. "Well, all right, Miss Rebecca, draw all the water you want. I've got just one thing to say to you. If you're not mightily careful, you'll get written up in Gleanings!"

Which is probably the only reason she is.

* * *

DEATH IN OCTOBER.

I think I shall not mind it much to die.

But, Death, please wait till I am very old!

Then some October, come. When earth is gold
And heaped with garnered fruits and roofed on high

With blue that lures our longings past the sky,
When bees drift gently home to hives that hold
Their dreams, come true; these restless hands
I'll fold

And in the flame-tipped earth contented lie.

Yet I shall not be here, but, oh, so far—

Some place, perhaps, where it is always spring,
With forward-lookingness in everything
And beauty still to break in soul and star.

But, oh, October earth, I love you so
I hope it may be autumn when I go!



FROM NORTH, EAST, WEST AND SOUTH



In Southern California.—We are very sorry, indeed, to report the retirement of Mr. and Mrs. J. D. Bixby from the editorship of the *Western Honey Bee*. Mr. Bixby took over the paper at a time when failure was in sight and has made a grand success of it. A large subscription list and quite a bank account were turned over to the new editor and treasurer. Mr. Bixby is a practical beekeeper, who did not need the income from the paper but did the work from a pure love of it and a desire to help his fellow men.

When the comb-honey producer is not offered as much for his honey per pound as the extracted honey is bringing, it is no wonder that he is asking himself if it is not about time to make a change. Now after visiting with a number of comb-honey producers and hearing from them of their success in making good crops, I feel that it would be a mistake to change over to extracted-honey production. There are several reasons for this, the first being that they are already equipped for comb-honey production. There would be a big expense incurred in making the change. Second, they understand the methods necessary to produce comb honey. And then, third, I find that in good seasons they get in many instances as many pounds per colony as the extracted-honey producer. The war demand threw prices all out of balance—not only on honey but on many other commodities—and most of us feel sure that comb honey will again bring prices much above that of extracted.

The San Bernardino and Riverside County clubs held a joint field meet and picnic at Urbita Springs, near San Bernardino, on August 28. About 100 beekeepers were present from all parts of the two counties. Among the speakers were R. Powell of Riverside, J. D. Bixby of Covina, Ray Fairchild of Redlands, and A. K. Whidden of Hemet. A rising vote of thanks was given Mr. and Mrs. Bixby for their excellent work of editing and publishing the *Western Honey Bee*. Universal regrets were expressed at the necessity of their giving up the work.

Many beekeepers over the southern part of the State find their bees very short of stores, and some will find it necessary to feed them. It was not so much a scarcity of bloom as a failure of nectar-secretion that caused this condition. The reports from the bean fields have not materially changed since last month. A few will get some surplus honey but the majority will feel satisfied if the colonies gather enough honey for winter stores.

The writer enjoyed a three weeks' camping trip thru Inyo and Mono counties during August. Trout abound in the mountain lakes and streams, and deer are to be found in many of the mountains. Inyo County stands

first in our State as a comb-honey-producing district. While this season's crop will not be a record breaker, it promises to be a good crop. Alfalfa is grown extensively where irrigation is practical, and it furnishes much honey. Sweet clover grows along the ditches, roadways, and waste places wherever it can get a foothold. I found small patches in the most inaccessible places while fishing along the mountain streams. Away back in the hills the sweet clover is getting quite a start. Beemen and many farmers are taking considerable pains to scatter the seed along all streams, irrigation ditches, and moist lands. While the stock do not take to it at first, preferring the native grasses and alfalfa, nevertheless they soon become accustomed to it and do well on it. In the Owens River Valley of Inyo County, it yields nectar until the frost; while with us in the lower valleys it usually dries up in July or August. L. A. Bell, living about five miles from Independence, Inyo County, has a fine wild-buckwheat range. Some of the crops he has made in former years will compare favorably with our banner crops in southern California. Disease gave the beemen of that district much concern for several years, but most of them feel that they have it under control at the present time.

The beekeepers are much encouraged with the prospects of a good price and feel that our Honey Producers' Exchange has done much to repay them for their efforts.

Corona, Calif.

L. L. Andrews.

* * *

In Northern California.—On page 524 of August Gleanings, A. E. Lusher wrote that while moving colonies he never sprinkled them with water, adding that "every one I gave least bit to always smothered." On page 587 of September Gleanings, Dr. C. C. Miller surmised that possibly Mr. Lusher gave only a small amount of water to colonies on the verge of smothering, and, had more water been given, such colonies would have been saved. Dr. Miller's conjecture must be right. The writer cannot understand why the application of the least bit of water should always cause colonies to suffocate. However, he believes Mr. Lusher wishes to point out that water is by no means the first consideration in moving, but that bees can be moved under practically any condition and at any time and for distances of about one hundred miles without giving water. Your correspondent believes this to be a fact; at any rate, he follows this in practice. Sufficient room and ample ventilation are of first importance. A strong colony in warm weather must have these; but if crowded and with little ventilation no amount of water will save them—not even ice water. Of course, the degree of warmth and ventila-



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tion and the temperature of the colony enter largely into the question. Quiet Italians will never gorge themselves like excitable blacks, and the melting-down of combs is almost always caused by overeating. I have mentioned that bees could be moved under practically all conditions without supplying water. However, if a colony of bees contains a quantity of **unsealed brood** and is to be moved a considerable distance, the bees must have water in order to keep the brood alive. Mr. Lusher's colonies undoubtedly had a considerable amount of unsealed brood, and, as he said in his article, were moved at sundown. At that time the water-gatherers had provided sufficient water until morning, and, if the bees did not arrive too late at their destination the following day, the larvæ were saved. Too few migratory beekeepers pay enough attention to unsealed brood. It will almost always be noticed that bees, after having traveled most of the night and not liberated before nine or ten o'clock the following morning, will send out searchers for water with the least possible delay. If you want to be **sure** to save your larvæ, give your bees a little water at sunup.

Bee weather favored us during August, and most of us will now get from a half to three-quarters of a crop. The nectar sources during the month were principally alfalfa and aphid honey along the rivers. At this writing (Sept. 5) the alfalfa is tapering off, but the river honey continues to come in. Blue curls is yielding, but as yet alkali weed and jackass clover have failed to secrete much nectar.

M. C. Richter.

Modesto, Calif.

* * *

In Ontario.—The Ontario beekeepers will hold their annual meeting in Toronto on Nov. 11, 12, and 13, according to present intentions. These dates are earlier than for the past few years and are so arranged to give visitors to the convention an opportunity of also taking in the Horticultural Show which will be held Nov. 10-15, if I have the dates correct. The directors confidently expect the Show in November will eclipse all former exhibits both in the matter of exhibits and attendance as well.

August has been quite cool thruout the whole month with the exception of two or three days, and cool weather in August invariably means a light crop of buckwheat honey. However, we are thankful for at least enough buckwheat honey to make the brood-nests quite heavy in most cases and to provide funds to buy sugar for those still short of stores. At one yard where we have no buckwheat within reach of the bees, starvation has threatened some of the colonies; and I understand this condition has been quite general in some of the western

counties where clover failed and no buckwheat is grown. The longer I keep bees, more than ever am I convinced that the best locations in Ontario are the comparatively few places where both alsike clover and buckwheat are grown in abundance. I am free to admit that very often the localities where no buckwheat is grown produce a finer sample of clover honey than is possible in buckwheat districts; yet the prices of the slightly better honey are not high enough to make up for the lack in August of buckwheat, which would have made the brood-nests heavy and often would have yielded a good surplus as well.

In this locality buckwheat and goldenrod bloom much earlier than in places farther south. Mr. Sladen of Ottawa finds that goldenrod in the Gatineau district north of Ottawa blooms earlier than at Ottawa. Why this difference is hard to understand as the clovers, basswood, and other honey-producing flora almost without exception bloom earlier in the south than in the north.

As far as I can learn, comparatively little honey has yet been marketed here in Ontario to date, Sept. 9. Dealers seem to be holding out for lower prices than the producers are asking, and time will tell how the game will end. In the meantime quite a lot of honey is being sold to beekeepers in localities where the crop failed.

That the crop is "patchy" in Ontario is an accepted fact. One Eastern man writes, "best crop ever, 170 per colony from clover, and sample excellent." As we have had some of this honey I can vouch for its being "excellent." A Western man writes "poorest crop in 30 years." A number of these latter reports, common in Ontario this year, should be given to throw a real light upon "Beekeeping in Ontario," as so extravagantly represented on page 572 in September Gleanings. By the way, I wish to say that I was amazed to read some of the statements of the writer of the article in question, especially where he says there is little disease in Ontario. The clause reads, "Disease has not as yet been very active in Ontario, altho in the southern part a few traces of American foul brood are evident." I do not know the writer of the article but I respectfully submit that he knows little of what he is writing about, so far as disease is concerned, when he expresses an opinion like that. I suggest that he visit the Provincial Apiarist at Guelph and get information on this subject, and have a look over the map in the office showing hundreds of blue- and red-headed pins where disease is prevalent. Unfortunately both European and American foul brood are present in many parts of Ontario, much as we regret the fact, and there is no use of disguising what we know to be true. Brood diseases are as much a menace as ever here



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in Ontario as in the U. S., and I think those in a position to know will bear me out in this statement.

J. L. Byer.

Markham, Ont.

* * *

In Texas.—The beekeepers of southwestern Texas are suffering from a very severe attack of "The Disappearing Disease." The area affected reaches from Travis County on the north to Live Oak on the south, and Dimmit County to the west. The disease broke out August 15 and has covered almost the entire section, hardly an apiary escaping. Some apiaries that were strong with young bees have suffered but little, while in others many colonies have died. The description of the behavior of the bees' attack by this trouble coincides in almost every particular with the description already printed in *Gleanings*. As usual, when a new disease puts in its appearance the beekeepers at once suspect that the bees have been poisoned. A large number of plants are suspected of having caused this trouble. It is a significant fact that the large majority of these plants yield pollen only. Many of our best beekeepers have noticed that for some peculiar reason it has been hard to keep queens in the hive this summer, and now that this disease has become so prominent they have connected the high death rate among the queens with it. When the disease attacks the hive, it is reported that the queen dies first, then the worker bees, later the young workers and brood, and the drones last. Just what the loss in Texas will be, cannot be estimated for at least two months.

The fall season has opened with the prospects for a fine honey flow. The division between the summer and fall blooming periods was never more pronounced than this year. During the last three weeks of August even tho we had an abundance of rain there were practically no native flowers in bloom. Cotton during this season gave a steady honey flow. Bitterweed, the "bane" of the beekeeper, seems to have completed its blooming period. With the beginning of September a large number of fall plants came into bloom, and the flow promises to be heavy and prolonged. Broomweed is very abundant and will be at the height of its blooming within three weeks. At the present time the bees are working on five species of *Eupatorium* (boneset). The various varieties of *Compositae* called rosinweed will be in bloom shortly. Thruout the Trinity and Brazos Valleys, heart's-ease or smartweed has become thoroly established, and the bees are working it heavily. If conditions are favorable, there may yet be a fall flow from cotton; but it is doubtful at the present time, as the leaf worm has defoliated a large per cent of the cotton in

Texas. It will require a month for the cotton to come into bloom again.

As evidence of what the honey flow has been in the cotton section of Texas, one of the prominent honey-producers of that region writes that he has already taken off 20,000 pounds and that there is now 10,000 pounds in his hives to be extracted. He has made no estimate on a fall honey flow, but 5,000 pounds would not be a high estimate. Thruout the black land belt of Texas cotton and bees form a combination that can not be excelled.

A start has been made in establishing the regional experimental apiaries. It will be remembered that the work was made possible by the appropriation of \$6,000 a year for this purpose by the last legislature. The yard at College Station will be used for work requiring daily attention and special equipment. The one at Dilly in Frio County will be used to solve the problems of the southwest Texas beekeepers. A queen-rearing yard in Bexar County will be used exclusively in tests on a large scale on the subject of bee improvement.

The beekeepers of the State are a unit in their expression of surprise at the announcement that F. B. Paddock has resigned the position as Entomologist and State Apiary Inspector of Texas, to become Apiarist of the Iowa Agricultural College at Ames, Iowa. Mr. Paddock has been identified with the work of the Texas Experimental Station for eight years, and for four years has had complete charge of the work of foul-brood control. It was thru his efforts that the present system of county inspectors became possible, and thru them is the present keen interest in the betterment of beekeeping. With the expressions of regret over the loss of Mr. Paddock, are the wishes for success in his work in Iowa. The loss of the leader has only momentarily staggered the beekeepers. Trained as they have been by him and now the responsibility thrown on them, they will rally to the aid of the new leader, whoever he may be, and the work will go forward as never before.

The bee moth is a subject of interest to all beekeepers, and especially to the beginners who have not as yet learned that strong colonies and regular care render the moth almost harmless. As commonly spoken of, the bee moth, or wax worm, refers to the insect destroying the comb of bees; and, farther, this damage is supposed to be largely the work of the large bee moth, *Galleria melbonella*, the lesser bee moth, *Achroia grisella*, not being widely distributed. It is interesting to note that in Texas the lesser moth is more prevalent in the portion of the State east of the Trinity River. In the territory between the Trinity and the Brazos the two moths are found in about equal numbers, and west of the latter-named river



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the large bee moth is the more prevalent. The lesser bee moth has never been reported from southwest Texas. It would seem that this moth is migrating westward with less rapidity than its larger relative.

College Station, Tex. H. B. Parks.

* * *

In Minnesota.—"Greatest State Fair in History—Attendance 582,217—Receipts \$335,000—Profits \$175,000—Attendance 150,000 Over Previous High Mark—\$3,000,000 Expansion Needed—Plans Begun." So read the big head lines in the Minneapolis and St. Paul papers at the close of the State Fair. And we rejoice to be able to announce that the beekeepers of the State took advantage of the opportunity to the extent that the honey exhibit far exceeded that of any of the last few years. This was due in large measure to Carl B. Straves, superintendent of the apiary exhibit, who has been untiring in his efforts to arouse the interest of the beekeepers of the State. We have been informed that no other State in the Union allows so much building space for apiary exhibits as does Minnesota. This space was filled, and plans are already under way for enlargement of the building and rearrangement of the interior parts. We are confident that the beekeepers will not disappoint those who are planning for larger things, but will give full and hearty co-operation towards making the apiary exhibit of 1920 the best and largest ever made in this country.

Grover C. Matthews of Colchester, Ill., has just come to the State and entered upon his duties as assistant professor of bee culture at the State University. Mr. Matthews has had experience as a practical beekeeper on a large scale in the alfalfa districts of the West and we believe that his coming to the State will be an inspiration to our commercial beekeepers to branch out still more extensively in the business. The overflowing enthusiasm of Professor Jager, and the large practical experience of Professor Matthews as his assistant, give the beekeepers of Minnesota reasons to expect great things from the Bee Culture Division of the University.

On the 16th of August the beekeepers of the southern portion of Mille Lacs County held a field meeting. In automobiles they drove from apiary to apiary where demonstrations of various kinds were given. During the day there were fully 100 different persons in attendance at one or more of the meetings. The itinerary was arranged by the county agent, Mr. Dahlberg, who is wide-awake to the interests of the beekeepers of his county. It is estimated that at least 50 tons of honey will be shipped out from that locality this year.

The Winona County beekeepers held their

annual summer picnic at Homer on August 28, which was greatly enjoyed by all present. After a feast of good things prepared and served by the ladies, the neighboring apiaries were visited and various plans and methods illustrated. About 40 were in attendance.

Chas. D. Blaker.

Minneapolis, Minn.

* * *

In North Carolina. C. L. Sams, bee specialist for the co-operative Federal and State movement for the development of bee culture in North Carolina, is rounding out his second year in the State, and the progress of improved beekeeping is quite gratifying. There are a score or more of beekeepers' clubs, and these and many individual beekeepers not yet allied with any of the clubs are putting in improved hives and adopting the improved methods of beekeeping. One beekeeper is reported as having transferred all but ten of his hundred-colony apiary from old box hives into modern hives and is obtaining more than three times the quantity of honey formerly obtained per hive. This beekeeper is so delighted with this change that he is putting in 500 more improved hives.

Along with the adoption of the improved hives is a change from the old black bee to the Italian bees, and the change is spreading rapidly, with promise that North Carolina will ere long take a front rank among honey-producing States.

One of the biggest acquisitions in the industry the past year has been the establishment by Elton Warner of Porto Rico of a 600-hive apiary in Buncombe County, near Asheville. He has thousands of colonies in Porto Rican apiaries, and will now enlarge his North Carolina apiaries and make Asheville his home.

E. E. Kirkham of Jamaica, whose father is a beekeeper in that country, served in the world war with Canadian forces and has now located as a beekeeper in Beaufort County. He has a 100-colony apiary near Washington where he is getting fine results.

As a rule North Carolina bees are remarkably free from disease. Just now two apiaries, owned by the same man, in the edge of Dismal Swamp, partly Perquimans County, are infected with European foul brood. It seems that the outbreak there has been traced to a migratory commercial apiary. The disease spread to wild bees in swamps adjacent to the Sound, and has now extended thru the swamps and across a neck of the Sound 12 miles to these other apiaries. It is expected that the disease will be checked before it gets out of Gates and Perquimans counties. Specimens sent to Dr. Phillips have been pronounced European foul brood.

Raleigh, N. C.

Wm. J. Martin.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Honey Cases Made into Demuth Cases.

In making preparations for wintering a number of colonies of bees according to the Demuth plan, it occurred to me that the box for holding two 5-gallon honey-cans, if stood on end, would answer all the requirements of a first-class case for the combs. All that is necessary to prepare the box for use as a winter case is to remove carefully the cover and one end of the box, and of course, the partition if the box has separate compartments for the cans. Construct a rim around the open end to hold the sides and bottom of the box closely in contact. The cover of the box is to be used as a follower, and the removed end as a cover. This box has the advantage of being readily adapted to almost any size of colony, as the follower confines the bees to just the space they can occupy for best wintering, up to 10 L. combs. The rim around the top makes the box sufficiently deep to provide the required space for feeding, it being 20 inches deep, inside measure, exclusive of rim.

In using this box in connection with the quadruple three-story hives, as a winter

thru the sides and ends of the quadruple three-story hives for holding these boxes or the Demuth cases will serve to hold them tightly in contact, and the nails are easily drawn out when the colonies are removed. As these honey-boxes are $10\frac{1}{2}$ inches wide

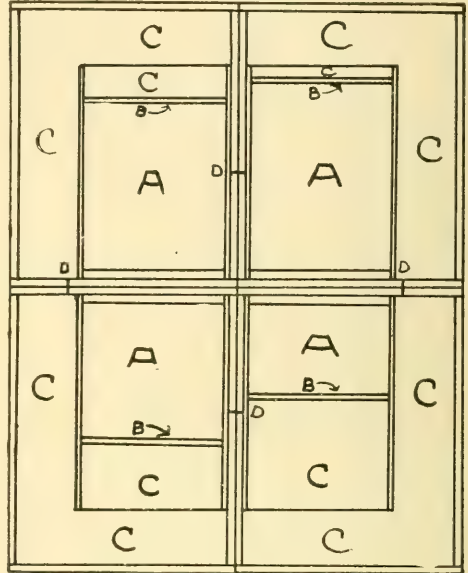
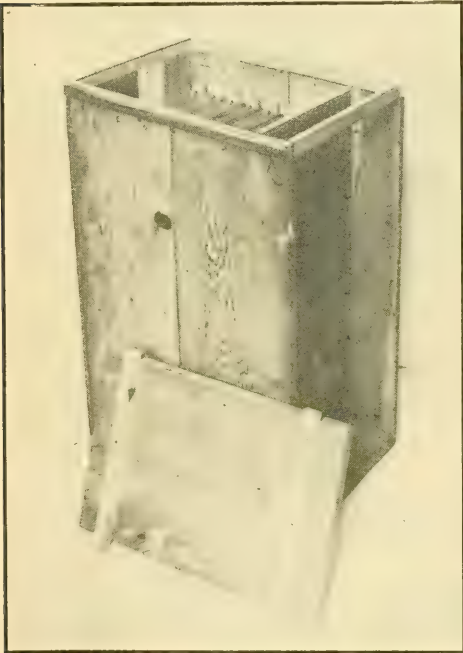


Diagram showing scheme of wintering four colonies in honey cases made over into Demuth cases, and packed in four three-story hives. C represents packing; B, followers; A, compartment occupied by the bees; and D, nails holding the 10-frame hive bodies in contact.



Honey case made over into Demuth winter case

case, as illustrated in editorial in the 1918 October Gleanings, place the boxes on end with backs against the inside short dimension of hives, backs to backs and sides to sides, as per diagram. A few nails driven

and $15\frac{1}{4}$ inches deep without the cover, outside measure, it will be seen that this box, when cased with the 10-frame L. hive bodies, as per diagram, allows for $3\frac{3}{4}$ inches packing at the sides and four inches at the front ends when the box contains 10 Langstroth combs, and correspondingly more packing when fewer combs are used.

The cheapness and economy in using these boxes in wintering bees will be better understood when we consider that after the bees are removed from them in the spring they are readily convertible to their original use as honey cases. Beekeepers who have not these honey cases on hand and wish to save colonies that would perish without extra protection and who will need honey cases of this kind next season, would do well to purchase them this fall. They would thus get double use of them and, no doubt, a more bountiful crop of honey to fill them.

There is no doubt that bees will winter better in a deep narrow enclosure. Especially is this mode of preparing colonies for winter to be recommended where the colo-

HEADS OF GRAIN FROM DIFFERENT FIELDS

nies are numerically weak, and where it is desirable to save nuclei capable of covering the spaces at the tops of three or four combs when stood on end.

Kenmore, N. Y. O. L. Hershisier.

Screen and Chaff Cushion Give Upward Ventilation.

In 1917-1918 I did not lose a colony, and the bees came thru strong in the spring and produced a good crop of honey. The winter was one of the worst we have had in sev-



Newspapers and asparagus tops used as packing.

eral years and the loss to most beekeepers was very heavy. I have found this to be a very convenient and economical way to winter bees.

The hives are left on the summer stands a few inches above the ground, facing the south. A wire screen, tacked on a frame of $\frac{5}{8}$ by $\frac{3}{8}$ -inch lumber, made with the same dimensions as the hive body, with a brace across the middle, is placed directly over the brood-nest, and a super of chaff over that. I like to put the chaff in a burlap sack and then pack it in the super; this keeps it from sifting thru and makes it easier to handle.

I hardly think this sack would be practical for a very large apiary, for it would require a great many bags which would be good for only one season, as the moisture they absorb rots them and makes them unfit for that use again. After the chaff super is put on, about five thicknesses of newspaper are wrapped around the four sides, lapped in such a way that the northerly winds can't get thru; the top edges of the paper are folded in, and a common metal roofed cover slipped on over the top.

This method of packing, in itself, is a good winter protection; but a sufficient amount of loose material, such as straw, cornstalks, etc., packed in back and over the top of them, makes it doubly sure.

This year I used asparagus tops (not tips), that had grown up and died down. Last year I used cornstalks but I think one is as good as the other.

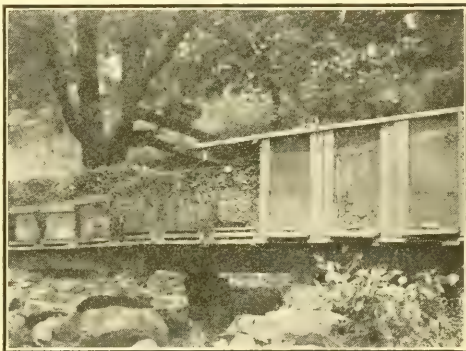
The screen $\frac{5}{8}$ of an inch or so above the brood-nest and under the absorbent material makes an ideal clustering place for the bees (if one takes the trouble to look he will always find some there), and it gives them easy access from one frame to another over the top, which I think is quite a feature, especially in cold weather.

If hives could be arranged so that this plan could be followed, I should think it would be a great deal cheaper and require less labor than with the various winter cases. There will be more or less mice about the hives packed this way, but there is no danger if the entrance is cut down to the proper size. I use an opening for my hives about $\frac{3}{8}$ by 7 inches. L. C. LeMay.

West Hartford, Conn.

One Way of Wintering.

Due to a steep hillside my bees are placed close together—in fact, are not over six or eight inches apart, yet I find that the virgins seldom miss their hives. I have the hives in straight rows, and close together, so as to accommodate a number of them on each stand. The stands are made of 3 by 8 lumber resting on rock or brick supports. The cut shows a row of them on a rock wall. Another row is placed on the same angle of ground, but with just



Packing the hives in long rows for winter.

the necessary few stones under the stand to level the support above the ground.

Hemlock, O.

John Bieseman.

Entrance Prevents Direct Draught.

While there are no beekeepers of the strictly commercial kind in this part of the country a great many people keep some bees, and a few people have from 30 to 100 colonies. The style in which my colonies of bees come out in the spring has led others to adopt my idea of protection. I found out in the beginning that the entrance was the weak

HEADS OF GRAIN FROM DIFFERENT FIELDS

point, and, seeing such a full discussion in Gleanings last fall, I have thought it might be worth while to show the way I keep the wind out. I make this entrance on the level with the top of the bottom-board and the same height as the regular summer entrance and about $\frac{3}{4}$ inch wide, and have never had one clogged with dead

bees. I am sure no direct current of wind can reach the cluster or even the hive entrance. In this altitude we have cool nights and I leave my bees packed all the year. I believe this to be an advantage even in our hottest weather.

N. C. McNeil.

Marlington, W. Va.



Extracting Time.

(With Apologies to
Walt Mason.)

Some kick off supers with a frown and rush them shopward on the run. They slash off

cappings up and down, and sling out honey by the ton. All day they hustle in the loot till muscles ache and backbones creak, for visions thru their noodles shoot of filthy

swag to last a week. They never seem to care a whoop that bees are robbed of precious store. They're hoarding riches in their coop, and bees can starve or get some more. They never seem to care a rap what happens to the bees next year. They see the shekels now on tap, which puts their thinkers out of gear. They take all supers as they go, and when this messy job is thru, they sneak out combs from down below to add a paltry bone or two. I'm slinging sweets myself just now, I'm smeared with honey thick and thin; with aching bones and sweating brow I go to roost at night all in. I need the loot as much as they who put their bees in starving plight, for bills accumulate by day and always double in the night. But my poor knees get weak and shake, when I attempt to take it all. My chicken heart will throb and quake at times when strong hearts never pall. So when I take the supers off and see the scanty stores below, I sometimes hesitate and cough, then slip the bees a comb or so. But if this year I'm forced to beg, just watch my smoke in 1920. Some kill the goose to get the egg, then starve while I have geese a plenty.

Indiana.

Bill Mellivir.



THE BACK LOT BUZZER.

This "gassin" th' bees by the Miller plan of introduction didn't work at our house. Ma, not knowin' what was up, turned in the fire alarm.

IN our last issue we explained how the bees should be supplied with plenty of good stores for winter; but in the mean time many letters have arrived in Gleanings' office, saying the requisite amount of sugar cannot be obtained. Two have asked if they can use foul-brood honey, and others have suggested using brown sugar.

Now, altho we know bees have been wintered successfully on a good grade of brown sugar we certainly do not recommend it except as a last resort. It is possible that damaged sugar may be purchased from the grocer, baker, or freight agent. This can usually be obtained at a low price; and, if it contains no foreign matter that could harm the bees, there is no reason why it should not be used.

But in case no sugar can be obtained we advise feeding honey. This, of course, means honey that is free from the germs of foul brood. If there is any doubt about the honey, the beginner should not feed it, but should purchase from a beekeeper whose bees are absolutely free of disease. It seems rather expensive to buy honey to feed bees, but we believe they are worth it.

Wintering in the Cellar.

After feeding, the colonies should be prepared for winter. If one has a good cellar that can be kept dark, and at an even temperature between 40 and 50 degrees, he can probably winter safely in the cellar. Good vegetable-cellars are usually quite satisfactory for wintering bees. If wintered in the cellar the entrances of the hives should be made small enough so that mice can not enter, but should not be entirely closed. According to the Government bulletin on wintering, where the average temperature is 25 degrees F., or slightly lower, the bees are wintered preferably in the cellar if the stores are good. Bees should be put in the cellar immediately after the last good flight, and taken out when the first natural pollen may be gathered, when it is warm enough so that they may have frequent flights. Now, these times are plainly quite indefinite, and hard to determine accurately; and for this reason it is probably safer for the beginner to winter outdoors.

Wintering in Packing-cases.

Those who have single-walled hives, and wish to winter outdoors, will need to provide good packing-cases. These may be made to hold from one to four colonies, and may be of any cheap lumber available. There should be from five to six inches of packing on the sides and top, and many prefer at least four underneath. A bridge should extend from the entrance of the hive to the outside entrance of the packing-case, so that no packing may shut the entrance,

TALKS TO BEGINNERS

By Iona Fowls

preventing the flight of bees on any possible warm days. If prepared in this way with bottom packing, but little entrance will be needed. Five $\frac{3}{8}$ -inch

holes, and in cold weather two or three, will be sufficient.

Wintering in Double-walled Hives.

Among the different ways of wintering outdoors, the beginner will find the double-walled hive quite easy and satisfactory if he takes the precaution to contract his brood-chamber to seven or eight frames (the number depending upon the size of the colony), crowding over the combs to the warmer side of the hive, and at the side of the frames placing a tight-fitting division-board, filling the space with tightly packed forest leaves. When contracting in this way one should take care to leave the colony with at least 30 pounds of stores. Tho this manner of packing is less troublesome than the preceding plan and brings the bees out in the spring in good condition, some object to it because of the necessity of opening them in the spring to give more room and possibly more stores. However, the beginner who is really interested in his bees will find this no drawback.

The tops of the frames may be covered with a mat or canvas or burlap held up from the frames by a few small sticks placed crosswise of the frames in order to provide the bees with passageways from one frame to another. Next to the mat is the warmest part of the hive, so the bees will readily pass from one frame to another when they need more honey.

A four- or five-inch tray, slightly smaller than the telescope cover, and filled with well-packed forest leaves, should be placed over the mat. The burlap attached to the bottom of the tray should be left baggy, and secured to the sides of the tray by wooden strips nailed on the lower inside edges. This allows the tray to fit tightly to the top of the hive, and prevents the wind from blowing under the tray. The hive should be left facing away from the prevailing winds with an entrance $\frac{3}{8}$ inch by two or three inches.

All colonies wintered outdoors, regardless of the style of packing, ought to be protected by windbreaks of shrubbery, trees, buildings, or a high board fence with two-inch spaces between the boards to break the wind somewhat before reaching the hives.

Before leaving the hives for winter they should be given a firm foundation up a few inches from the ground, and given a slightly forward tilt so that the inside of the hives may keep dry. During winter, and until May in the Northern States, the best care one can give his bees is to leave them quite undisturbed.

SINCE early boyhood, E. R. Root has suffered much from earache, his last trouble along this line being as recent as two years ago. This summer he noticed that he was gradually becoming deaf; and, on going to a specialist who had cared for him in the past, he found that the continued inflammation had finally caused an accumulation of pus in the inner ear, thus necessitating what is known in surgery as a "radical mastoid" operation. This was successfully performed on Monday, Sept. 8.

Mr. Root was able to leave the hospital on Sept. 17, but will have to continue treatments for some weeks to come. Fear of any complication now being remote, there is every reason for a complete recovery. It is a strange coincidence that this same trouble is what caused the early death of that able apicultural writer and authority, W. Z. Hutchinson, the founder and editor of *The Beekeepers' Review*.

Later: Mr. Root is back in the office and says he is feeling fine.

* * *

Our Texas correspondent, F. B. Paddock, State Entomologist of Texas, has tendered his resignation and has accepted the position of State Apiarist of Iowa. A man having so wide a view of beekeeping is bound to make himself invaluable wherever his work may take him. We are glad to say that, altho in a different State, Mr. Paddock has agreed to continue as our correspondent.

* * *

The fall field meeting of the New Jersey Beekeepers' Association was held at the State apiary at New Lisbon on Sept. 10. Demonstrations were given of packing and unpacking, queen-finding, queen-introduction, and treatment of American foul brood.

* * *

The Northern Idaho Beekeepers' Association was organized at Sandpoint, June 26, 1919. Arthur Sires of Sandpoint was elected president; E. A. Anthony of Rathdrum, vice-president; and Edgar L. Ludwick, the Bonner County farm agent, secretary and treasurer. The new association expects to hold a meet twice a year.

* * *

The annual meeting of the Northern Illinois and Southern Wisconsin Beekeepers' association will be held in Rockford, Ill., in Memorial Hall, on Tuesday, Oct. 21.

* * *

At the Kansas State Fair, held at Topeka, were displayed colonies of different strains, hives, devices, wax, various honeys, honey vinegar, fruit and cookery sweetened with

JUST NEWS

Editors

honey, and flowering plants from which the different honeys were gathered. The exhibit in the apiary section was unusually good. The prizes were taken

by Roy Bunger, A. V. Small, A. M. Rock, O. A. Keene, Geo. Pratt, and Jas. A. Murrel.

* * *

Renting of bees has become an industry in the Yakima valley, Washington. E. Bowles, who harvested \$12,000 worth of cherries from a 6½-acre orchard this year, has completed negotiations with Dr. C. R. Ponting to rent 40 stands of bees from the Ponting apiary next spring at \$5 each.

* * *

Howard Myers was working over a 250-gallon honey vat, 9 feet deep and nearly full of strained honey, when he lost his footing and plunged into the vat, sinking into the honey until he was all but covered. His partner, John Adams, grabbed him by the hair of his head and held on until Mrs. Adams brought a chain which Myers fastened around himself, when he was drawn out, stickier, but no sweeter for his experience. —The Buffalo Express.

* * *

The Cayuga County Beekeepers' Society held a basket picnic at the home of Geo. L. Ferris of Five Corners, N. Y., on Tuesday, Aug. 26. Between 60 and 70 beekeepers attended. Addresses were given by Prof. Rea of the New York State College of Agriculture, Ithaca, N. Y., and C. E. Weatherby, County Farm Bureau.

* * *

H. A. Scullen, bee expert from Washington State College, has visited this locality in an effort to determine the cause of excessive mortality among bees. W. H. Tucker reports 80 colonies lost and 150 badly depleted at a loss of from \$10,000 to \$12,000. E. E. Starkey of Biggam reports 50 colonies entirely lost and others depleted. His loss is \$2,000. K. P. Runa states that of 25 thriving hives he has not enough left for one. Harry Fisher, Don Pearl, and others report similar conditions. —Spokesman Review.

* * *

The Kansas Beekeepers' Association will hold their annual meeting for 1919 at Topeka, Kansas, Dec. 18-19.

* * *

The following is the program for the Extension Short Course for commercial beekeepers, to be held in Yakima, Wash., Nov. 10-15. Monday: A talk by Dr. E. F. Phillips on "Behavior of Bees in the Fall," followed by Geo. S. Demuth on "Beekeeping Practice in the Fall." Tuesday: "Behavior of Bees in Winter," Dr. Phillips; "Beekeep-

ing Practice in Winter," Geo. S. Demuth; "Wintering as Practiced in Washington," H. A. Scullen. Wednesday: "Behavior of Bees in Spring," Dr. Phillips; "Beekeeping Practice in Spring," Geo. S. Demuth; "Bacteriology of Bee Diseases," A. F. Sturtevant; "Queen-rearing," Dr. Phillips; "Evolution of Beekeeping Practice," Geo. S. Demuth. Thursday: "Behavior of Bees in Summer," Dr. Phillips; "Beekeeping Practice in Summer," Geo. S. Demuth; "Symptoms and Gross Diagnosis of Bee Diseases," A. P. Sturtevant; "Locality," Geo. S. Demuth; "Visiting with Beekeepers," Dr. Phillips. Friday: "Behavior of Bees in in Swarming," Dr. Phillips; "Swarm Control," Geo. S. Demuth; "Laboratory Diagnosis of Bee Diseases," A. P. Sturtevant; "Factors Influencing Nectar Secretion," Dr. Phillips. Saturday: "Treatment of Bee Diseases," A. P. Sturtevant. Leading beekeepers of the State will also appear on the program and take part in the discussions.

* * *

The fall convention of the Connecticut Beekeepers' Association will be held in the old Senate Chamber at the State Capitol, on Saturday, Oct. 11.

On the program are a number of good addresses: "How I work my supers to get the best crop," Chas. J. Rost, Meriden; "New appliances in beekeeping," William L. Dodge, Derby; "Swarm control via queen-yards, yard records, and an increase in honey crop," C. W. Goodsell, Waterbury; "A woman's success with bees, and how I won it," Mrs. Alice M. Swanson, Mansfield; "How I pack my bees for winter, and reasons for each step," Daniel Sullivan, New Britain; "How I manage my apiary to get best results," J. C. Potter, Guilford.

Prizes of \$1.00 and 50 cents are offered as first and second prizes respectively for best jar of light extracted honey, best jar of dark, best section of comb honey, and best exhibit of one pound or more of wax.

* * *

With the organization of the Liberty Bell Bee Club in Pasco, Wash., there has been launched what is intended to become a state-wide and perhaps a national institution. The corporation is planned to increase the production of honey, to stimulate the saving habit, and to provide an educational fund to assist worthy students in need of help in securing a higher education.

The mother apiary of the organization will be started in Pasco, the work being under the supervision of L. S. Crossland. Plans call for the raising of \$2,500 capital in this county, and Mr. Crossland will guarantee 8 per cent return on the money invested. As soon as the stock has been sold other apiaries will be established at other points and the capital stock increased, eventually spreading to all parts of the State. It is provided that one-half of all earnings over and above the initial dividend shall be paid

into an educational fund to be controlled and used in accordance with the by-laws of the organization.

* * *

To the Beekeepers of America:

At the annual meeting of the National Beekeepers' Association at Chicago last February, there was evidence of dissatisfaction with the existing National organization. Provision was made for a convention of delegates from the various state associations to meet in Kansas City on January next. These delegates will come together to put into concrete form your views of what a National Beekeepers' Association should be. Your delegates must answer the following questions and many others:

Shall the National be exclusively a social and educational organization?

Would such an organization satisfy the needs of 800,000 beekeepers?

Has the National kept pace with the development of American beekeeping?

Should the National foster the organization of co-operative exchanges in the various States and take an active part in the business life of American beekeepers?

Shall the annual meeting of the National be a social meeting with an educational program or shall it be a business meeting of delegates from state organizations?

What shall be the future relation between the National, State, and County organizations?

Shall the National undertake a nationwide advertising campaign?

Shall membership be open to anyone or shall it be confined to bona-fide honey-producers?

Shall the National maintain a paid secretary, and an office which is open for business the year around?

These are some of the questions which will come before the meeting of delegates at Kansas City. Your delegates must be present or the opinions of the beekeepers of your State will not be represented.

The well-organized States of the great West will be there. The delegates from the Central and Eastern States should be there to present their opinions. Nearly all organizations in the Central and Eastern States will hold annual meetings within the next three months. This matter should be taken up at each of these meetings. By all means send a delegate to voice your sentiments.

It is not a question of whether the National shall live or die. The National will live, but its future activities will be modified to suit the needs of the beekeepers it represents. Whether it shall represent a section of the country or all of the nation may depend upon whether or not beekeepers from all sections participate in its reorganization. It is incumbent upon every organization to take some action on this matter.

B. F. Kindig,

Pres. National Beekeepers' Assn.
East Lansing, Mich.

QUESTION.—What are the prospects of getting sugar this month for bee-feeding? The weather has been so bad that the prospects for a fall flow are poor, and there is absolutely no sugar here. I am selling the largest quantity of white-clover honey in years and still have a lot on hand. But I am thinking of stopping selling and saving it for the bees. Yet it seems too bad to keep all this high-priced honey for the bees.

Vermont.

N. H. Wilson.

Answer.—It does seem a pity to feed such fine clover honey to the bees when sugar would do just as well and perhaps better. We are in hopes that you will be able to obtain the sugar in time. Yet we feel you are wise in reserving enough honey for the bees until you actually have the sugar in your possession.

Question.—Can you tell me what is the cause of honey becoming candied in the comb? I have just taken off a super with five out of eight combs filled with candied honey, and capped. I could not extract clean, and the honey is now candied, and consequently is not clear. Is there any way to remedy or prevent this?

Virginia.

Esther M. Meredith.

Answer.—As we understand it, the combs were not extracted clean, and the honey candied in the bottoms of the cells. Then later, when the bees filled these cells with honey, this honey also candied. If a little candied honey is within a cell, one can be quite certain that it will cause the candying of other honey placed there later. It is a good plan, after extracting, to allow the bees to clean out the stickiness from the comb in order to prevent this later granulation. We might also add that honey from certain sources candies more readily than that from other sources.

Question.—I feel much disgusted with myself this afternoon. It was with misgivings that I killed two one-year-old queens to put in two young ones. The ones I had, had the frames filled with brood. This afternoon I found one of the queens dead in the cage; and the other one, after four days in the cage to get acquainted, was smoked in, but was balled; and when I loosened the ball she flew away. Is it wise for one who does not raise queens to run the risk, especially where the queen is comparatively young?

Illinois.

Edwin Bebb.

Answer.—The young queens are to be preferred, we should hardly recommend that you requeen every year. Still, we believe that it usually does pay to requeen every two years. You will doubtless have better success next time at requeening if you requeen during the honey flow, when the bees are more apt to accept the queen readily. A very successful way of requeening, and one entailing but little risk, is to introduce the new queen or queen-cell to a nucleus of two or three frames of hatching brood. This nucleus should be provided with a cover and bottom-board, and placed immediately over the cover of the colony

GLEANED BY ASKING

Iona Fowls

to be requeened, having the entrance contracted, and facing in the direction opposite that of the lower colony. If the introduced queen is a virgin, she could

easily be mated from the upper story; and, after she begins laying, all of the unsealed brood from the lower hive may be placed in the upper hive, and the old queen killed. Between the upper and lower hives may be placed a screen so that the bees of the upper colony may get the colony odor of the colony to be requeened. After two days remove the screen very quietly and insert a single layer of newspaper. We have just requeened an entire apiary by this method and have found it satisfactory.

Questions.—(1) "Grouping in Fig. 1 looks better and takes up a little less room than in Fig. 2, but the latter is more convenient if two people are working together at the same hive—Editor."—Page 587, September Gleanings. I'm much interested about that "two people working together." Seems sociable



Fig. 1.



Fig. 2.



Fig. 3.

like. We do a little at team work in this locality, but perhaps not as much as we should. Please give us particulars about "working together." (2) You make no mention of the usual way of grouping, Fig. 3. Is there anything wrong with it? I have used it for many years and like it, yet not having tried either of the other ways may not know. Fig. 1 takes up more room than Fig. 3. If better in any way, in what way?

Dr. C. C. Miller.

Illinois.

Answers.—(1) Queens are more easily found when the hive is first opened than later; and therefore two working together can find a queen in less than half the time it would take one alone. Also, when one keeps enough colonies to make his living in that way he is sometimes obliged to work with bees at an unfavorable time. An inspection of the brood-chamber may be required when bad weather or robbers render it unwise to have the hive open any longer than is absolutely necessary. At such a time two may work at the same hive to advantage. With one on each side of the hive, two people equally swift in their manipulations may rapidly examine the combs, each taking alternate combs. The one who handles the last comb shuts up the hive while the partner is opening the next one. This is also an excellent way of teaching a beginner and helping him to gain confidence in himself; but at the start it will be necessary to keep watch of his combs as well as one's own, and perhaps handle two to his one. If anything unusual is noted it is immediately mentioned, so that the other may take it into consideration; and if both are experienced, it often proves that two heads are better than one. (2) It is our experience that with this grouping there is more

or less drifting. If bees are flying more freely from one colony than from the one next to it, returning bees from both colonies are inclined to enter with the crowd. Again, don't you think that if hive No. 13, mentioned in your *Stray Straws*, page 658, had contained a real colony, perhaps the queen of No. 14 would have been balled? Well, of course that is only a guess. But on account of the weather and various other factors, swarms do occasionally issue, even with the best of care. Now, suppose one is not right there to attend to the matter, would not a clipped queen that issued from group in Fig. 3 be more apt to be balled than one from either of the other groups? In fact, this might happen to her when she was no more than a foot from her own entrance. Now, since our own apiaries are visited but once every seven or eight days during the summer, this objection would have considerable weight with us. There is, however, another still stronger objection; and that is, the greater ease of spreading disease, especially American foul brood. We have noticed at different times that, if a colony has the disease, the nearest one facing in the same direction is apt to have it later on. It is an easy matter for bees loaded with diseased honey to enter a near hive facing in the same direction.

Question.—On page 367, June, C. L. N. Pearson speaks of his method of swarm prevention, and I wish to ask about what time the shallow super is placed underneath the brood-chamber.

Minnesota.

J. N. Nelson.

Answer.—We believe the shallow super is put underneath just before the main honey flow; but there will be no particular harm done if it is placed there even earlier than that, for of course the heat will rise to the upper part of the hive, so that having the shallow super underneath will make but little difference anyway in the temperature of the bees.

Question.—On page 293 of *Gleanings* for May, 1918, you gave a tube method of treatment of American foul brood whereby you use full sheets of foundation. Another scheme for combating this form of foul brood is to shake the bees on sealed combs of honey after brood-rearing has ceased in the fall. Are there any objections to combining the two methods and transferring the bees from the old hive to the new one with the combs of honey by means of the tin tube and the bee-escape?

New York.

C. R. Osborne.

Answer.—Altho we have never tried the plan of shaking on to combs of sealed honey we know the plan has been tried by some. If one could be certain that the frames of combs were entirely sealed, we believe it would be safe to use this method: but there is always a chance that there may be cells here and there around the edges where the bees might possibly store a little more honey; and if any foul-brood honey is stored in the bottoms of the cells, and left there until spring, then one may be certain of a continuation of the disease. If the cells were left near the center of the hive

it would not be so bad, provided the queen had stopped laying for the season, because the honey thus placed would be used up before spring. However, queens after they have ceased laying sometimes begin again quite late, so that, altho we have never tried the plan, it does not seem quite safe to us. If you try the plan we shall be very much interested to learn the result. We ourselves intend trying the plan on a few colonies this fall. There is no reason why it could not be used in connection with the tube plan; but, since the brood would be already hatched, there would not be as much advantage in the tube treatment as earlier in the season.

Question.—Why are you or the beekeepers so anxious to get more and more new beekeepers started? It seems funny to me that in any other business the hardest thing to find out is the profits. Just try to find out the profits of the beef, steel, oil, or any other trust; or just try to get in their line of business and see how quick they will have you out again. Beekeepers must be either the most honest men on earth or the biggest fools. Or are their profits so easily made that they are so glad about it that they feel compelled to tell others?

New York.

John Buchanan.

Answer.—A great many of the good beekeepers do not tell their yearly income, from the very justifiable fear that others will move in and overstock their locality. In fact, there are a number of beekeepers who do not hesitate to give the impression that their localities are unusually poor. Please note one of our items under "Bees, Men, and Things," in the September issue. We would hardly call beekeepers the most honest men on earth nor the biggest fools; but they clearly understand the vast amounts of nectar that are yearly going to waste. They also know that only a small amount of honey is used in proportion to the amount that people could easily use to their advantage. This being the case, the beekeepers have no right greatly to fear over-production. If, therefore, they have found profit and enjoyment in beekeeping, is it not natural that they should be glad to have others also embark in the same business if they feel it can be done without overcrowding their own territory? Altho a few beekeepers are jealous of their occupation, and endeavor to keep as many as possible out of the business, yet the great majority of beekeepers will be found quite generous and friendly to the beginner.

Question.—When a colony dies, is the queen the last to die?

T. Hamilton.

Oklahoma.

Answer.—When a colony gradually dies, the bees left continue to take care of the queen as best they can, so that she is generally one of the last to perish.

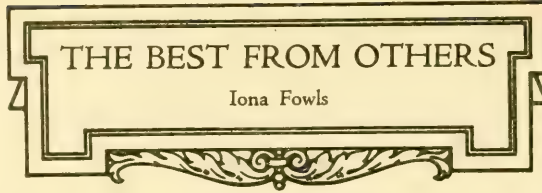
Question.—Will the soil from a patch of red clover do to inoculate the ground for sweet clover?

North Carolina.

E. D. Harper.

Answer.—On referring the matter to A. I. Root he says it would not.

A BEE club of 12 boys and girls was started in Kansas in the spring of 1917 by Chas. A. Boyle, county agent, according to Capper's Farmer for September. These boys and girls then clubbed together and purchased an extracting outfit. Altho they worked with their bees independently they did the work of extracting together. Such good results were obtained that the club has now increased to a membership of 50.



Iona Fowls

In an Experimental Farm Note in the September Canadian Horticulturist and Beekeeper, sugar syrup is spoken of as a better winter food than good natural stores.

When a grocer fails he soon finds it out; but thousands of beekeepers are miserable failures and never do make the discovery. This is absolute proof, of course, that beekeeping is a branch of industry well worthy of effort; for if one can fail and still keep going it speaks well for the returns to be attained under the right management.—E. F. Phillips in American Bee Journal for September.

In an article concerning M. H. Mendleson, in the American Bee Journal for September, are the following interesting points:

"He formerly made a practice of requeening all his colonies every two years. Since he has had to contend with European foul brood he requeens every colony that does not build up quickly in spring, and never allows any queens more than two years old."

"It is his practice to leave about twice as much honey on the hives as will be needed in a favorable season."

"A special feature of the Mendleson equipment is the series of big tanks, four each holding seven tons, two eight tons, and one ten tons, providing a combined storage capacity of 54 tons. In addition to these he has several four-ton tanks."

"With a crew of six men he has extracted and filled with honey a seven-ton tank every two days during the rush of a good season."

"On one occasion, as a test, he took off, alone, and extracted 1,500 pounds of honey in half a day."

By the burning of nearly 2,000 hives affected with foul brood, as reported in the July Gleanings, Jamaica proved her real interest in beekeeping. In the annual 1919 report of the Jamaica Department of Agriculture we find the following:

"I am glad to be able to report that there is every reason to believe that foul brood has been effectively stamped out, and that

this prompt and drastic action has freed the honey industry of the Colony from the inroads of a most destructive disease. The Legislative Council is

to be congratulated on its action in authorizing this large expenditure at a time when general revenue was not in an easy condition for meeting extra demands for money."

* * *

Altho rearing no queens for sale, I procure the best blood obtainable from all parts of the United States, testing each one, and rearing queens and drones from the best. A high-class strain is thus assured, and has resulted in the elimination of the Isle of Wight trouble.—Gilbert Barratt, in The Bee World, July.

* * *

In an unsigned article in the American Bee Journal for September, the truth of which is vouched for by the editor of that journal, we find the following on page 304:

"At our State convention, Mr. ———, a representative from the Bureau of Entomology, gave us a lecture, the principal part of it being that they had found a new and much better way of wintering bees than was generally known. He said it had been thoroly tested, and found to be far superior to any other method. He said if the temperature of the cellar was 50 degrees, the bees were so quiet and comfortable, and in such a dormant condition, that they required very little oxygen, and wintered very much better with all ventilators closed perfectly tight than if given air. The cellar must be at that temperature when the bees were put in."

The writer of that article said that, altho he had never had his cellar as warm as that when the bees were put in, he decided to try the plan. Before doing so, however, he talked the matter over with a professor who had charge of the State University bees, and found that he, too, intended to winter in this way. He, therefore, bottled his bees up tight without ventilation in an outdoor cellar at a temperature of 50 degrees and left for another State. In February he wrote home for a report of cellar conditions, and learned that the bees were in a deplorable condition, several inches deep on the cellar bottom. A good many of the bees had detected a little better air near the door, and there were found piles of bees four to six inches deep. The uneasiness of the bees had increased the temperature to 62 degrees, and eight bushels of dead bees were on the floor. Out of 109 fine colonies he had less than 25 three-frame colonies left. The university bees also perished, altho the professor attributed their death to dysentery, and made no reference to ventilation.

THE plan of putting colonies in rows north and south, facing alternately east and west, using two-story hives, and covering the whole row with tar paper, has proved with me and others to be the easiest, cheapest, and best way to winter here and in similar climates. The most of the honey is in the upper story, and bees generally winter there. Then they have some honey in the lower story to carry up in spring that helps greatly in improving brood-rearing. Tar paper draws the heat of the sun and helps to warm up the hives and aids the bees greatly in early spring.—Daniel Danielson, Morgan County, Colo.

I note that in the August issue of *Gleanings* there is a quotation which might be considered an injustice to producers in this section. I refer to the price quoted for honey by a Portland firm. I believe this is the lowest quotation made anywhere, and I should like to call attention to the fact that they are not producers but distributors. As nearly as we can ascertain, no extracted honey has been sold yet by the actual producer for less than 20 cents, first-class comb honey bringing \$7.50; beeswax 35 to 38 cents. I might add that the season so far has been one of the best for many years. The weather during the white-clover season was abnormally cool, and the flow was not as heavy as we might have expected with the amount of bloom in sight. Still, bees did well; and those who are in the business of moving their colonies to the mountains have harvested tons.—E. J. Ladd, Multnomah County, Ore.

It appears that there is a new bee disease near Rochester, N. Y., and one which will not be very common for a while. Beekeepers think Mr. Wahl has overestimated the damage he has sustained. The following is clipped from a Rochester paper. "That airplanes flying from Britton Field are claiming so much of the air as to seriously hamper the diligence of his bees, is the claim of Louis Wahl, a Scottsville road farmer, who has complained of the matter to Sheriff Andrew Weidenmann. The planes, he alleged, actually destroyed bees from his apiary and also damaged his orchards. It is alleged that Wahl recently struck Deputy Sheriff John Brasser, who has been detailed to guard the planes, when Brasser trespassed on Wahl's land. Brasser has been advised to swear out a warrant against Wahl." —John N. DeMuth, Genesee County, N. Y.

I think it should be suggested to Mr. Myers that next time he tries the honey bath he should wear a bathing suit; or possibly now he could start a health cure with a honey bath as the drawing card. Perhaps

BEES, MEN AND THINGS

(You may find it here)

it would be better to await results in his own case before building the sanatorium, for if the effect shows by building him up from a thin fellow to

strong, robust-appearing man he could, no doubt, induce many to try the cure. Why would not a honey bath be a good ad as a cure for rheumatism?—J. H. Howe, Cattaraugus County, N. Y. [For further particulars, see news item.—Editor.]

On page 444 of July *Gleanings*, Stancy Puerden made mention of modified milk for babies. I know of a similar case as one of my shopmates used it for his baby with good success. The baby couldn't keep the milk on its stomach without the honey. There is also another use for honey. One of my shopmates asked me a few days ago if I had some honey. He wanted me to be sure to save him some, saying that for a cold his wife takes honey and hot milk on going to bed and she would not like to be without it.—Geo. S. Schofield, Hartford County, Conn.

Bees had been doing tiptop for ten days, when in the middle of August we had a hail-storm that cut everything in its track. Corn is 75 per cent ruined; alfalfa bloom is all cut away; sweet clover the same. Roofs are ruined on my dwellinghouse, henhouse, garage, machine-shed, and granary. The heavy Acme tin covers on the hives were dented and pounded as if a hammer had been used. Each colony lost at least a quart of bees.—J. H. Wagner, Fremont County, Colo.

It has been very dry in Maine. The honey crop is a fair average in quantity, and excellent in quality. Bees are apt to go into winter with too few young bees, as brood-rearing is being checked. I enjoy *Gleanings* much when not too tired to sense what I read. Let M.-A.-O. in oftener with his nonsense. It rests one when tired.—O. B. Griffin, Aroostook County, Me.

I have been wanting to tell you how much I enjoy the story by Grace Allen in *Gleanings*. I think it is a wonderfully fine story. I have but little time for reading stories, but this little story holds me. After the last is published I hope it will be put into book form. If so, I shall surely want a copy.—Geo. Griesenaver, Cook County, Ill.

Chardon chronicles the doom of a swarm of misguided country bees who never saw an automobile before. They mistook its radiator for a hive, and popped in while the motor was running. That was their finish.—Cleveland Press, Sept. 5.

We have about half a crop of clover here. Dry weather cut it short.—H. G. Quirin, Huron County, O.



Let the words of my mouth and the meditation of my heart be acceptable in thy sight, O Lord, my strength and my redeemer.—PSALMS 19:14.

For from within, out of the heart of men, proceed evil thoughts, adulteries, fornications, murders.—MARK 7:21.

Thou shalt not covet thy neighbor's house, thou shalt not covet thy neighbor's wife, nor his man servant, nor his maidservant, nor his ox, nor his ass, nor anything that is thy neighbor's.—EXODUS 20:17.

YOU will notice, friends, that I have not yet got out of my mind the text that I used in our July number, especially that part in regard to the meditation of the heart. Our second text tells us that the crime that is just now so prevalent, especially in our great cities, originates in the "meditation" of the heart. The

question often comes up, "Which is the most important commandment? What is the worst sin that a man can commit?" The reply has frequently been, "A violation of the commandment which says, 'Thou shalt not kill.'" But I have been thinking seriously that the one which follows it, if not worse than murder, is often further reaching in its ultimate consequences. It was David who uttered the words I have quoted so much, and the words that have come to be so precious to me. I am not theologian enough to say these words were uttered in his youth; but I rather imagine they were. And yet David, whom God declared to be "a man after my own heart," committed that terrible sin of adultery first and then murder afterward to cover up his first sin. You can hardly pick up a newspaper that does not report *another* crime as the result of an unfaithful husband or an unfaithful wife. And these crimes generally, like David's crime, go on thru the generations.

A business man who was trusted, and supposed to be beyond suspicion, recently got his stenographer into trouble. To get out of the trouble a crime was committed. I do not know whether the world generally calls it murder or not; but I call it murder—the murder of a sweet, innocent babe. Just yesterday Mrs. Root called me to look at a little girl grandchild four and a half months old. I talked to this child, and she gave me a sweet little smile that seemed to me more precious than anything else here on earth. You may talk about the flowers and the sunshine and the hum of bees; yet these things can in no way compare with that pure and innocent look of

recognition when the baby just begins to recognize her friends and the thought that she is loved.

Well, this crime of adultery sooner or later results in murder—not the murder of a full-grown man or woman who is presumed to be able to take care of herself more or less, but the murder of a helpless innocent. Some peo-

ple seem to think that if the murder is perpetrated before birth it is not murder; but I look upon it now as one of the worst and foulest of murders.

I wish you, my dear readers, would go back to the second book of Samuel and read the 11th and 12th chapters. I am afraid that David was hurt by prosperity; and, by the way, how many of us just *now* are harmed by prosperity? If there was ever any man who had no need of coveting another man's wife, that one was King David. When he was listening to the tempter, I wonder if he ever thought about that text of his in regard to the meditation of the heart. In consulting an able attorney recently in regard to things of this kind he said that when a man becomes unfaithful to his wife and to his marriage vows, he is no longer faithful to his employer nor to anybody else. He can not be trusted anywhere. He has broken one of God's most holy commands and he is likely to steal, kill, or do almost anything else. And poor innocent Uriah! Because he refused to be a party to crime, even tho it was the king who had committed the crime, he met a most foul and shameful death. May the Lord be praised that there was such a man as the prophet Nathan who had the courage to talk plainly, even to the king of the realm; and with the beautiful parable he led David to see just where he stood in the "miry clay." He said plainly, and without any circumlocution, "*Thou art the man.*"

Now, if you have become interested in the story (and I hope you have), just go on and see what David suffered—yes, and the *whole nation*—because of that foul

crime, and because he trampled under foot two of God's most sacred and holy commandments. I have been induced to write a good deal as I have because of a long letter from a poor abused and wronged woman. In that letter she writes as follows:

I want you to write in your Home department, and beg and warn all young girls against married men who really are wolves in sheep's clothing."

Just at the present time women and young girls of almost all ages are occupying business positions. They are out among men in a way they have never been before. In one sense it is all right, and I am glad to see it. I am glad to see the whole wide world is beginning to discover that women are equal to men in almost everything; and as a rule the presence of women—yes, and of girls too—in all the departments of trade and commerce, factories, etc., is proving to be a benefit. But the man who would take advantage of these circumstances, and deliberately get *too well* acquainted with the girls and women in his employ—I was going to use a harsh term, but perhaps I had better change it and say the parents and brothers and sisters of the girl had better keep on eye on him. An old saying is to the effect that "A stitch in time saves nine." Another one says, "Prevention is better than cure," but the word of God says, "He that converteth the sinner from the error of his way shall save a soul from death, and shall cover a multitude of sins."

Will you, my readers, please keep in mind that a greater "multitude of sins" follow the breaking of the command that comes right after "Thou shalt not kill" than perhaps any other crime a man may commit?

Some years ago a good friend of mine made a remark something like this: "Mr. Root, I do not want a cent of any man's money unless I have honestly earned it." I believe he spoke the truth so far as *dollars* and *cents* were concerned; but at the same time it was rumored that he was getting to be more familiar with another man's wife than he ought to have been. Just a word here about gossip. I know as well as anybody what fearful injustice is sometimes done by circulating stories with little or no foundation; but when I once said to a pastor of ours years ago, "Mr. R., do you know there is quite a little talk about Mr. —?" he replied:

"No. Mr. Root, I did not know there had been any talk about that man and another man's wife; but I feel pretty sure there *ought* to be some talk."

In surprise I said, "Why, Mr. R., you

would not encourage gossip, would you?"

"Yes, Mr. Root, I do believe in one kind of gossip. It is at times a safeguard on humanity."

Well, the man who said he did not want a cent of any man's money, not very long after I talked with him, was seen out riding with the woman in question. As I had warned him to keep far away from her, and go on the other side of the street when he saw her coming, and avoid her presence in every way possible, he gave as a reason or excuse that he overtook her as she was walking on foot quite a little way from town. I told him it would have been a thousand times better if he had turned his automobile and gone the other way when he first caught sight of her. He pleaded that her old mother was also with her; but I declared that even then, no matter what the circumstances, he should have avoided any such public exhibition. Now, this man had a bright and intelligent wife—a woman whom any man might be proud of; but what do you suppose happened? He soon disappeared, leaving a prosperous business to go to pieces, and has never been heard of since. It occurs to me now that the most solemn and sacred obligation resting on any person is his marriage ceremony—the oath given before man and before God to be true to each other, to make it their sacred and solemn business thru life till death, and to be true to each other and true to the great God above.

And a little child shall lead them.—ISAIAH 11:6.

"AWAY UP HIGH, PAPA'S BABY."

On the very day that the first copy of *Gleanings*, Vol. I, No. 1, came off the press, God sent into our home a little blue-eyed girl baby. She seemed to recognize me as a particular friend, with almost the first opening of her blue eyes; and I in turn seemed to recognize her as a "Godsend" at that particular time of my life. ("Love at first sight.") Of course, we two commenced from that moment, almost, to become acquainted. When she was able to walk fairly well, when I came home her favorite pastime was to come up to me; and while I held her baby hands so as to steady her, she would walk up my body to her perch on my shoulder; and when I used the words, "Away up high, papa's baby," she would greet me with a glad smile and shout of delight, grasp my hands, and repeat the everyday performance. I think I have told you before, that little did she, or I, dream that her childlike mission here on earth was to lift the poor *father* "away up high," compared to where he stood, when she got

that first glimpse of him, with her baby blue eyes.* A little later, when this same father was engaged in starting mission Sunday schools, especially in places where strong drink was rampant and making great havoc, she used to go with him and stand up on the stage before the school, and with babyish accents sing a little hymn that started something like this:

I am Jesus' little lamb;
Happy all day long I am.

She was so very little that sometimes she forgot and did not render the hymn correctly. On one such occasion, instead of closing with the "I am" she got it "I are;" and her roguish brother Ernest had no end of fun in saying to her during the week, "Happy all day long I are." Let me now digress a little.

Our county fair has just closed. Among the other inducements to get the people to come was a flying-machine; and passengers were to be carried up for about seven or eight minutes for the sum of \$15.00. Inasmuch as I was with the Wright brothers during their experiments, and witnessed their first successful flight in getting around to the startingplace, everybody took it for granted that I would be the first one to fly. I first refused, on the ground that I was getting to be too old; and finally, to my great astonishment, that same blue-eyed baby (of almost 50 years ago) came forward, bright and smiling, and almost as handsome in my eyes as when I first used to say "Away up high" to her. This same blue-eyed matronly woman, even tho she is the mother of a couple of fair-sized men, announced that she was going to fly, and, amid a crowd of expectant and admiring citizens, off she went up, if not into the clouds, she was pretty near their neighborhood. Little did I dream in the years gone by, and little did she dream, that in the years to come that same "away up high, papa's baby," would be repeated while she was away up above the earth and all things earthly.† Perhaps she will tell you about it herself. But she came home so full of enthusiasm, and the children and grandchildren and the friends at the factory urged me so much, that I finally consented.

By the way, a few months ago, in order to preserve my health I consented to an

*Some years ago we used to hear a good deal about "What is home without a mother?" Just now I would add also, "What is home without a baby?" Is it not possible that a baby in the home—yes, even a *girl* (?) baby—may "convert the sinner from the error of his way," "save a soul from death, and hide a multitude of sins"?

† "Up above the world so high,
Like a diamond in the sky."

X ray examination of my teeth. Quite a number of them were badly ulcerated at the roots and had to come out. For the first time in my life, I took an anesthetic; but I became so excited before doing so that my heart beat so wildly (at the thought of something so near death) I felt as if I could hardly stand it. As consciousness slowly gave way, I do not think it was altogether the little prayer, "Lord, help," but it was a prayer that the dear Savior should go with me side by side while I went down into oblivion. Huber stood by my side, and I remember asking to have him where I could see him as I went down to death, or at least it *seemed* to me much like it. When I came to, it seemed as if I had been gone *somewhere* for about a couple of hours; but Huber announced that it was only *four minutes*, and there lay the heap of ulcerated teeth just as the X ray showed them.

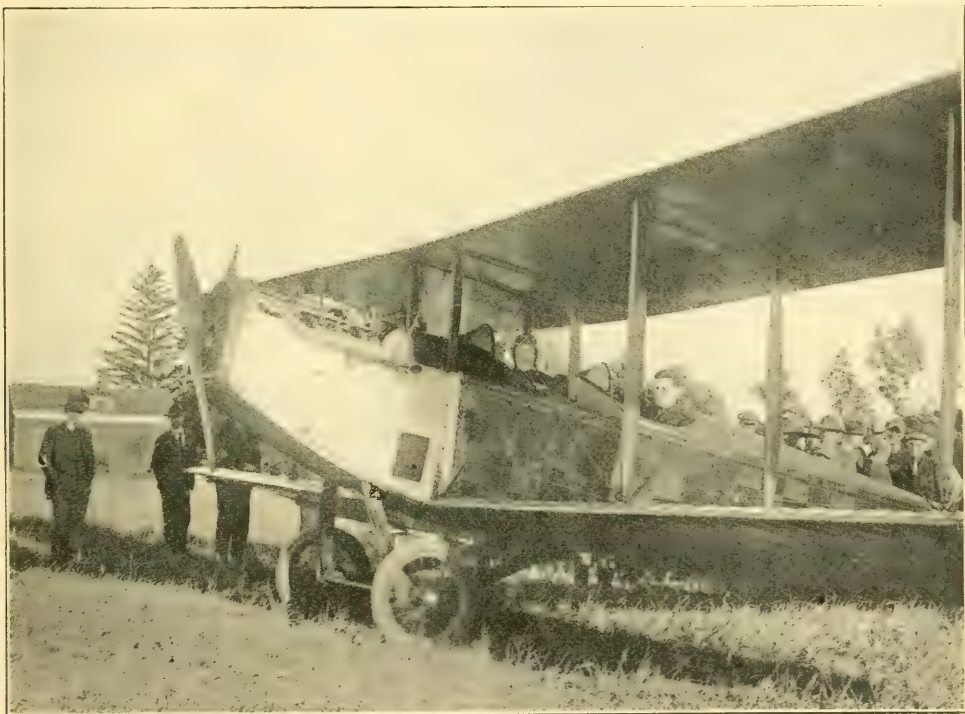
Now, I did not intend to talk dentistry right here; but so many of you want to know whether my health has improved since that "expensive" operation, I will just say that for a time I was better, and then I had my old troubles again. It has been a sort of up and down. But just now, and for the past few weeks, I have been feeling remarkably well—almost as well as I ever did in my life. Now for the flying trip:

Just before starting my heart beat almost painfully from the excitement, just as it did on this other occasion which I have been mentioning; and when the machine bumped over the rough meadow lot, uphill toward the north, I almost regretted that I had undertaken it; but when all of a sudden the beautiful machine slipped up noiselessly into the air, a wonderful thrill of thanksgiving and praise came into my heart, that it was finally my privilege to go up in a flying-machine. We have been having recent rains, and crops were looking fine. The sun was over in the west, just right to illuminate the landscape to the best advantage; and, altho I have all my life been an ardent admirer of beautiful fields and growing crops and happy homes, I never saw anything like this before. Our town of Medina seemed like a veritable paradise. Beautiful homes, well-kept lawns, abundant shade trees and shrubbery, combined to make it something brighter and more entrancing than perhaps any other view I ever had before. But as we went up higher and higher things dwindled down until the Root factory and the various offices and other buildings seemed like a chicken-yard with nicely painted coops.

A train of cars passed just under us. I looked down and said to myself, "Why, can that possibly be a *railroad*?" It seemed to me more like a string of ants following each other on a black wire and, had it not been for the smoke of the locomotive, I could hardly have been sure it *was* a train of cars. Not far from our factory there was a beautiful little garden, or so it seemed to me. There was an oblong or oval road going clear around in the center, with a lawn and trees in the middle. At one side of the yard was what I took to be a very pretty and artistic chicken-coop. We passed over it several times, and I was wondering how it was possible that such a

only dimly. The city of Akron, 20 miles away, was hidden by dense masses of smoke; and, altho the air seemed to be very clear, as it was just after a rain, I was unable to see in any direction more than 15 or 20 miles on account of the smoky horizon. I do not know whether this is always the case or not.

I was particularly impressed with the wonderful skill with which the machine was managed.† It responded to the lightest touch, not only as readily as any automobile, but even more so; and instead of feeling dizzy or fearful while up in the air, it occurred to me (and I still stick to it to a considerable extent), that traveling thru



In the above picture your humble servant is shown on the front seat. I wanted to wear my ordinary cap, but they said it would be blown off, and so I had to be equipped with a sort of fur-lined hood. The driver of the machine is shown just back of me. The propeller is in front. Does it not really look as if that little propeller was wholly inadequate to the task of pulling that big machine a mile a minute, or more, up in the air? No matter how it looks, the little "whirligig" certainly *did* "deliver the goods."

pretty little spot could be so near our factory, and I had never seen it. After I got down and had been inquiring about it some one said, "That was the fairground;" and what I took to be such a pretty fixed-up chicken-coop was the grand stand. I was disappointed because I could not see further away from Medina. Far off were some beautiful hills and a rocky ledge about 16 miles away. But this I could see

the air will ultimately be as safe as the automobile, and perhaps more so. When

†Since the above was dictated I am told that during the three days they were here they carried up something like 30 passengers. The machine with two passengers weighs just about a ton. By means of an aneroid barometer they decided that at one time I was up almost 1,000 feet. Furthermore, they claimed to have carried 12,000 passengers on similar trips and that they never had a mishap. If that is true, is it not likely that this new method of transit may be even safer than railroad cars, electric cars, or even automobiles?

we came down to the place of starting we whizzed thru the air at such a terrible breakneck speed it seemed there would have to be a crash of some kind when we struck the ground; but the operator tilted the machine so that the rubber wheels first just skimmed the grassy slope uphill; and the stop was quicker and easier than we stop our best railway trains, with our most expert engineers and latest improvements.

Just a word about the cost of such a trip. One reason why I objected at first was that I was afraid I might be setting a bad example before the younger ones around me. One son, two sons-in-law, three grandchildren, and several of our office girls made the trip. Perhaps they could afford to pay \$2.00 a minute for 7½ minutes of such experience;° but the whole wide world is just now talking about the *high cost of living*. Our good President and the good men and women back of him are right in warning our people to be careful, and to be saving of their money, even if we are getting better wages than ever before, and to economize in every way. No doubt, the price of a trip will soon come down. There is going to be plenty of competition very soon. One of my grandsons said something like this:

"Grandpa, if you will buy me a flying-machine, which will cost you only \$2,000, I will take you down to Florida in about *six hours*."

I think the above is a little exaggerated, but it may soon come to pass. And, by the way, can somebody tell me something about what is being done by means of this wonderful gift from God toward helping missionaries in spreading the gospel? Is it the only thing that can at present do the work? They are talking about exploring the north pole in this way, and perhaps that is all right; but is it not of far greater importance that we should use it for following out the dear Savior's injunction, "Go ye therefore and teach all nations," and, "Io, I am with you, even unto the end of the world"?

°I suppose most of you have noticed certain birds that have the remarkable faculty and skill of being able to remain stock-still while in the air. The hummingbird in particular shows this trait. Well, when we were up at the highest point there was quite a brisk north wind, and the operator almost stopped the engine; in fact, I could see the blades of the propeller quite plainly, and then I discovered he was regulating the speed so that it would just about equal the wind; and there we were for several seconds suspended, as it seemed to me, stock-still. It may have been dropping just a little. I was afraid there was something the matter with the engine, and that we were going to drop to the ground right on top of our factory; but after he had let me see that standing still was possible when the wind was just right, the motor speeded up and we were off again.

A "SKY PILOT" AND NO MISTAKE.

After the above was dictated I found the following in the *Bible Societies' Record* for August:

SCRIPTURES BY AEROPLANE.

By Rev. A. Wesley Mell.

Dan Davison, the aviator who piloted the Bible plane, was called the world's first "sky pilot" for the Scriptures.

At 3:30 p. m. the aeroplane circled the field and flew out over the Pacific Ocean, circling higher and higher until it had reached an altitude of 4,000 feet. It then started eastward for its one-hundred-mile journey, flying over San Francisco, Berkeley, and other cities, en route. Two hundred Gospels were dropped from the skies on these cities.

THAT WONDERFUL WISCONSIN HEN.

We have several times been enjoined to be careful about saying a thing can not be done, for this is an age of accomplishing seeming impossibilities. The excitement just now is in regard to a Wisconsin hen that lays 16 eggs in one day, 77 in one week, and 151 in a month. Those of you who want full particulars should hunt up the *Literary Digest* for July 19. Aside from the story in that journal, a young beekeeper, Milan Huber, Bangor, Wis., has written us several letters from time to time in regard to this hen. I wrote him at first that hens sometimes become egg-bound and skip two and maybe three days, and then afterward lay two and possibly three eggs in the course of a few hours. Now, a clipping from one of the newspapers sent by our young friend Huber suggests that the owner of the hen, or somebody else, takes advantage of this "freaky hen," and by some sleight of hand manages to get extra eggs into the nest. From the statement submitted, however, this seems to be impossible; for we have a sworn statement from what is supposed to be a good man that he sat down in a rocking-chair and kept watch until this hen laid 13 eggs.

This is dictated on the 21st of August. Should any explanation occur before this goes into print I will try to keep our readers informed.

On page 467 of our July number I said as follows:

"It is a wonderful task for a hen to lay a fair-sized egg every day; and to do this she must have the best of feed, and have it at frequent intervals."

Now how does the above (which I believe is absolutely correct) sound when we are told (as above) this wonderful hen laid *several*?

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Amber honey in 60-lb. cans, 16c per pound. Joe C. Weaver, Cochrane, Ala.

FOR SALE.—90 cases new crop clover honey in new 60-lb. cans, two in case, 25c per lb., f. o. b. here. W. B. Crane, Ottawa, Ohio.

FOR SALE.—Well-ripened clover honey in 60-lb. cans, one or two to case. F. W. Lesser, R. D. No. 3, E. Syracuse, N. Y.

FOR SALE.—White-clover extracted honey in 60-lb. cans, 2 per case. Noah Bordner, Holgate, Ohio.

FOR SALE.—Clover, amber, and buckwheat honey in 60-lb. cans, 2 per case. H. B. Gable, Romulus, N. Y.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Derooy Taylor Co., Newark, N. Y.

FOR SALE.—Choice Michigan white clover honey in 5-lb. pails, 12 in case or 34 in barrel. David Running, Filion, Mich.

FOR SALE.—New clover and buckwheat extracted honey in 60-lb. cans, 2 cans per case. H. F. Williams, Romulus, N. Y.

FOR SALE.—Several tons of New York clover honey in new 60-lb. cans. For sample and price address John N. DeMuth, Pembroke, N. Y.

FOR SALE.—Well-ripened extracted clover honey in either ton or case lots. Chalton Fowls & Co., Oberlin, Ohio.

FOR SALE.—Finest quality extracted clover honey in new 60-lb. cans for 25c per pound. Charles Sharp, Romulus, N. Y.

FOR SALE.—Choice grades of extracted honey in new cans. Write for prices stating quantity wanted. Thos. Atkinson, Cozad, Nebr.

FOR SALE.—10,000 lbs. very fine flavor white honey in new 32-gal. oak barrels, 20c per pound f. o. b. New Smyrna, Fla. Sample 5c. A. F. Brown, 29 Cypress St., Daytona, Fla.

FOR SALE.—Choice raspberry-clover honey, "New Crop," in 60-lb. cans, 2 per case, 23c per pound. Sample 15c. Fred Telshow, Waymart, Pa.

FOR SALE.—New crop honey of a clover grade put up in 60-lb. cans, two to the case, 20c per pound, f. o. b. Mapleton. Sample, 15c. W. M. Peacock, Mapleton, Iowa.

FOR SALE.—Clover extracted honey, two 60-lb. cans to case, 25c per pound. Honey is well ripened. Cans go over-weight one to two pounds, but we charge for 60 pounds only. H. G. Quirin, Bellevue, Ohio.

FOR SALE.—Our new crop of white-clover honey is now ready for market. It is put up in new 60-lb. tin cans, two to the case. The crop is short this season so do not be disappointed by not ordering early. Sample 25c. D. R. Townsend, Northstar, Mich.

FOR SALE.—Raspberry honey slightly mixed with goldenrod. Was all left on hives until thoroughly ripened. It is thick, rich, delicious, none letter; put up in 60-lb. cans. Price, \$15.00 per can. Sample by mail for 20c which may be applied on order for honey.

John Hutchinson, Lake City, Mich.

FOR SALE.—Locust Dell Honey. This celebrated table honey is now ready for delivery in 60-lb. cans and a limited number of smaller sizes. Clover, \$15.50 per 60 lbs.; \$30.00 per case of 120 lbs. net; buckwheat, \$12.50 per 60 lbs.; \$24.00 per case of 120 lbs. net.

Alfred W. Fleming, Hudson, N. Y.

E. D. Townsend & Sons, Northstar, Michigan, offer their 1919 crop of white clover and white clover and basswood blend of extracted honey for sale. This crop (it's only a half crop this year) was stored in nice white clean extracting combs that had NEVER had a particle of brood hatched from them. We had more of those extracting combs than we could possibly use this year, and we piled them on the swarms as needed. NOT A SINGLE OUNCE OF HONEY WAS EXTRACTED UNTIL SOME TIME AFTER THE CLOSE OF THE WHITE HONEY FLOW; consequently, NONE could be produced that will excel this crop of honey. Of course, it is put up in NEW 60-pound net tin cans, and they are cased up for shipment, two in a case. If you are one of those who buy "just ordinary" honey, at the lowest price possible, kindly do not write us about this lot of honey; but if you can and have customers who will want the very best and are willing to pay the price, order a small shipment of this fine honey as a sample, then you will know just what our honey is and whether it is worth the little extra price we ask for it or not. We quote you this fine honey, either clear clover, or that containing about 5 per cent of basswood—just enough basswood to give it that exquisite flavor relished by so many, at only 25c per pound on car here at Northstar. Kindly address, with remittance, E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Comb and extracted honey, also beeswax. Send samples.

C. S. Fryer, 386 Halsey St., Portland, Ore.

WANTED.—Comb and extracted honey, car lots and less. Mail samples, quantity, and price.

W. Morris, Yonkers, N. Y.

WANTED.—Small lots of off-grade honey for baking purposes.

C. W. Finch, 1451 Ogden Ave., Chicago, Ills.

WANTED.—1,000 sections comb honey 4¼ x 4¼ x 1½. Send your lowest cash price and how graded.

E. B. Brown, White Plains, Box No. 323, N. Y.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations.

M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.

Hoffman & Hauck, Inc., Woodhaven, N. Y.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston.

M. V. Facey, Preston, Minn.

WANTED.—White clover or light extracted honey. Send sample, state how honey is put up and lowest cash price delivered at Monroe. Also buy beeswax.

E. B. Rosa, Monroe, Wisc.

WANTED.—Comb and extracted honey. Send sample of extracted and quote your best wholesale price f. o. b. your station, how packed, etc., in first letter.

D. A. Davis, 216 Greenwood, Birmingham, Mich.

BEE SWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

BEE SWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WE BUY HONEY AND BEE SWAX.—Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section, and sections to a case. Extracted honey, quantity, how packed, and send samples. Charles Israel Bros. Co., 486 Canal St., New York, N. Y.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

SEND TODAY for samples of latest honey labels. Liberty Pub. Co., Sta. D, Box 4E, Cleveland, Ohio.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

FOR SALE.—Pan Handle beekeepers, please note that you can buy Root bee supplies "next door." Will C. Griffith & Sons, Elm Grove, W. Va.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.

R. & E. C. Porter, Lewistown, Ills.

FOR SALE.—Second-hand honey tins, two per case, in exceptionally fine condition, at 50c per case. Buy them now for next season's honey crop. Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FOR SALE.—3,500 supers, 4 x5 sections; 3,000 of them Danzenbaker; also 4,000 shipping cases for same. All in first-class condition.

L. A. Coblentz, Rigby, Idaho.

Give your bees the right kind of winter protection and winter them in our sectional winter cases, painted, ready for use.

Oscar Kazmeier, Kiel, Wisc.

FOR SALE.—Ten 10-frame Protection hives, complete, each \$3.00; 10 empty standard hives, each \$1.00; 30 plain-section supers, complete, each \$1.00. M. Ullmann, Box No. 395, Highland Park, Ill.

FLORIDA BEEKEEPERS.—You save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.

Crenshaw Bros. Seed Co., Tampa, Fla.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE.—Blue vine seed, or climbing milkweed (*Gonolobus laevis*) the greatest white honey plant known for black bottom land of Middle West. Far excels white clover in yield and flavor. Six pods containing innumerable seed mailed to any address upon receipt of \$1.00.

S. H. Burton, Washington, Ind.

FOR SALE.—200 new 10-frame cross style reversible bottom-boards at 50c each; 200 new 10-frame flat reversible covers made of best select white pine at 60c each; 100 new Alexander feeders for 8- or 10 frame hives at 20c each; 150 Boardman feeders without cap or jar at 12c each. All above goods are factory-made and have never been used. Write M. E. Eggers, Eau Claire, Wisc.

THE DOMESTIC BEEKEEPER is published "wholly in the interest of the honey-producer." It will help you to produce more honey, and will then help you to sell it at the best price. Our "Service Department" has saved beekeepers hundreds of dollars in purchasing supplies. Send for a sample copy and let's get acquainted. We make liberal clubbing offers. Address

The Domestic Beekeeper, Almont, Mich.

WANTS AND EXCHANGE

WANTED.—To correspond with all beekeepers in Maryland. W. Jensen, Mars Bluff, So. Car.

WANTED.—Wax press. Give particulars and price. J. B. Holloper, Queenbreeder, Rockton, Pa.

A \$60.00 new Conley post card plate camera outfit complete. Will trade for bee supplies. F. W. Carritt, Soldier, Iowa.

Three good horses for trade for bees or supplies. Tell your story in your first letter.

Frank J. Krupka, Merrill, R. D. No. 1, Mich.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED.—To purchase 10 to 300 colonies of bees, box hives or otherwise.

Chas. Schilke, Matawan, R. F. D. No. 2, N. J.

WANTED.—Bees in Jumbo hives, also Jumbo frames with drawn combs.

E. A. Newman, 4205 8th St., Washington, D. C.

WANTED.—A postal-card-size camera. Must be high grade lens and shuttle.

I. C. Bachtel, Lake City, Calif.

WANTED.—To buy 100 to 200 colonies of bees in good location by an experienced beekeeper. Price must be right. F. R. Smythe, 1523 Groesbeck Road, Cincinnati, Ohio.

WANTED.—50 colonies of bees in regular 10-frame hives, also BEST grade white or sweet-clover honey. Sample and price.

Geo. Herrick, 11225 Vernon Ave., Chicago, Ills.

WANTED.—Frames with at least 50 per cent of cells well filled with pollen. The frames must be reasonably straight and free from foul brood.

Griswold Greenhouse Co., Ashtabula, Ohio.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., Pearl & Walnut St., Cincinnati, O.

WANTED.—To correspond with any one who has had experience in making a first-class straw skep. We are in the market for a considerable quantity.

The A. I. Root Co., Dept. U-2, Medina, Ohio.

WANTED.—Experienced beekeeper, young man, wants to get in touch with a good partnership, share, rental, or purchase proposition for 1920 season. Pennsylvania or New York preferred. Best of references. C. C. Brinton, Christiana, Pa.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1919 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Son, Hamilton, Illinois.

WANTED.—To buy 100 colonies of bees, more or less. Tell your story in your first letter.
Frank J. Krupka, Merrill, R. F. D. No. 1, Mich.

WANTED.—BEEWAX. The keen interest manifested in our new NEARER TO NATURE Weed Comb Foundation shows that we will use larger stocks of beeswax than ever before. We want all of your choice yellow wax for our new foundation. If you have some that is dark and off flavor, ship this to us also, as we can sell it after remelting it to a special trade which we have developed, not requiring a fine flavor or color. We are paying today 38c in cash or 40c in trade. Ship your wax today if you have a large quantity, before the advance in freight rates. Pack our wax in double sacks. Put a tag in each sack with your name and address, and number of pounds you ship. Use no paper or other packing. Boxes or barrels may be used if burlap sacks are not available; but be sure they are securely nailed so they may not be broken open in transit.

The A. I. Root Co.

REAL ESTATE

FOR SALE.—A fine Florida farm of 20 acres, good six-room house and barn. Ideal place for fruit, chickens, and bees. For particulars write
C. Mack, Mannville, R. F. D. No. 1, Fla.

FOR SALE.—My home and 17 acres of land, including 250 colonies of Italian bees fully equipped for extracted honey.

P. W. Stahlman, West Berne, N. Y.

FOR SALE.—A wonderful bargain for some northern beekeeper who wishes to locate in the South. Our business with all of our city property, consisting of our well-established honey business, dealing in beekeepers' supplies, honey cans, and bees, together with our business house, and two-story residence of 10 rooms on adjoining lot, and three cottages in yard. Right in the center of the city of Floresville. We solicit correspondence.

The Hyde Bee Co., Floresville, Texas.

FOR RENT.—My 400-acre woodland and pasture farm in Berkshire mountains of Massachusetts. Fifteen lakes within ten miles. Substantial old farm house in good repair, fitted with plumbing. Three large barns. Locality suited to dairy, bees, and small fruit. Entire product can be sold on farm at retail prices. On main tourist route thru Massachusetts. Rent can partially be paid by work developing farm. Only thoroly responsible, long-term tenant will be considered.

Arthur E. Morgan, Englewood, Ohio.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list.
Jay Smith, R. D. No. 3, Vincennes, Ind.

Well-bred bees and queens. Hives and supplies.
J. H. M. Cook, 84 Cortlandt St., New York.

Hardy Italian queens; one, \$1.00; 10, \$8.00.
W. G. Lauver, Middletown, Pa.

Golden Italian queens, untested, \$1.00 each, six for \$5.00.
E. A. Simmons, Greenville, Ala.

FOR SALE.—Sixty colonies of Italian bees in 8-frame hives.
L. Sauer, Gardiner, N. Y.

FOR SALE.—Mismatched Italian queens, 50c; hybrids, 40c.
C. G. Fenn, Washington, Conn.

PHELPS' GOLDEN QUEENS will please you. Mated, \$2.00. Try one and you will be convinced.
C. W. Phelps & Son, Binghamton, N. Y.

THREE-BAND Italians only. Untested queens, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00. H. G. Dunn, The Willows, San Jose, Calif.

"She suits me" Italian queens, \$1.15 each from May 15th to Oct. 15th; 10 or more, \$1.00 each.
Allen Latham, Norwichtown, Conn.

FOR SALE.—Indianola Apiary offers Italian bees and queens; tested, \$1.50; untested, \$1.00.
J. W. Sherman, Valdosta, Ga.

Leather-colored Italian queens, tested, June 1st, \$1.50, untested, \$1.35—\$13.00 a dozen.
A. W. Yates, 3 Chapman St., Hartford, Ct.

FOR SALE.—Three-banded Italian queens, untested, \$1.00; \$10 a dozen. J. A. Jones & Sons, Montgomery, Ala., R. F. D. No. 1, Box 11-A.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, \$1.00; mated, \$2.00.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Three-banded Italian queens, untested only, one, \$1.50; six, \$8.50; dozen, \$16.00.
P. C. Chadwick, 725 E. High Ave., Redlands, Calif.

FOR SALE.—Apiary of 43 colonies of bees, full equipment. Nothing needed. Write
The Farmer Apiaries, Ramer, Ala.

FOR SALE.—Golden Italian queens ready April 15; \$1.00 each; 10.00 per dozen.
W. W. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—150 colonies of bees up to date. Best honey-producing location in the State. First-class outfit for comb and extracted honey, at reasonable price.
Wm. A. Voigt, Nyssa, Oregon.

GOLDENS THAT ARE TRUE TO NAME. Untested queens, each, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00.
Garden City Apiaries, San Jose, Calif.

FOR SALE.—Three-band Italian queens. Untested queen, \$1.00; six, \$5.50; twelve, \$10.00. Tested queens, \$2.00 each.
Robert B. Spicer, Wharton, N. J.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GEN-TLE. Virgins, \$1.00; mated, \$2.00.
C. W. Phelps & Son, Binghamton, N. Y.

ITALIAN QUEENS.—Northern-bred, three-banded, highest grade, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price \$1.00 each.
J. H. Haughey, Berrien Springs, Mich.

FOR SALE.—100 colonies Italian bees (hives full of young bees for winter); equipped for 250 to 300 colonies, power extractor, etc. Also 30 acres land with buildings, if wanted. Reason for selling, age and unable to work.
O. H. Townsend, Lake City, Mich.

FOR SALE.—200 colonies of bees all in first-class condition for winter, in new Woodman Protection hives. No disease. Must be sold by Nov. 1. Reason for selling, age and poor health. Write for particulars.
Bell E. Berryman, Central City, Nebr.

NORTH CAROLINA BRED Italian queens of Dr. C. C. Miller's strain of three-band Italian bees, gentle and good honey-gatherers. July 1 until Oct. 1, untested, \$1.10 each; \$11.00 per dozen; tested, \$1.60 each; select tested, \$2.25 each. Safe arrival and satisfaction guaranteed.

L. Parker, Benson, R. D. No. 2, N. C.

FOR SALE.—Queens of Moore's strain, leather-colored, three-banded Italians. I am doing my annual requeening and can furnish select tested queens one and two years old, at \$2.00 each. Also can furnish untested queens at \$1.50 each; \$8.00 for 6; \$15.00 per dozen. All orders filled promptly.
John Hutchinson, Fife Lake, R. D. No. 2, Mich.

PURE ITALIAN QUEENS, Doolittle and Moore choice stock, also Goldens that are GOLDEN. Every queen mated and LAYING before being caged. Select untested, \$1.50 each. Select tested, \$2.50. For large lots write for price. Safe arrival and satisfaction I guarantee.

J. E. Wing, 155 Schiele Ave., San Jose, Calif.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May and June, untested, each, \$2.00; six, \$7.50; doz. \$14.00; tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnetts, Va.

QUEENS AND BEES.—This fall is the proper time to replace all queens two years old as well as the failing ones. Circular free. See large ad elsewhere. Nueces County Apiaries, E. B. Ault, Prop., Calallen, Texas.

HOLLOPETER'S Italian queens, \$1.00 each, while they last. We are uniting nuclei and have a lot of extra young laying queens, which we guarantee to be purely mated and as good as any ever reared from our best stock. A bargain.

J. B. Hollopeter, Queenbreeder, Rockton, Pa.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, \$1.25; 12 queens, \$14.00. One pound of bees with queen, postpaid, \$6.00. Safe arrival and satisfaction guaranteed.

M. Bates, Greenville, R. D. No. 4, Ala.

FOR SALE.—1 to 100 colonies of Italian bees, fine strain with tested queen, in one-story 8-frame single-walled hives, full-depth, self-spaced, Hoffman frames; nearly all wired, \$10.00 each. A few colonies in 10-frame hives, \$12.00 each. All free from disease, f. o. b. here.

Wilmer Clarke, Earlville, N. Y.

FOR SALE.—90 colonies of bees, with 8-room house and half-acre lot. Bees in fine condition, nearly all Italian, well stored, no disease; 360 extracting combs, 175 comb supers. House in good condition, newly painted, electric lights. Good honey house. Must sell soon. Bee supply trade.

O. Holdren, Darlington, Mo.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.

H. G. Quirin, Bellevue, Ohio.

HELP WANTED

WANTED.—Man for comb-honey production, 12 months' work. State wages expected and experience. Sunnyside Apiaries, Frontberg, Mont.

MISCELLANEOUS.

Guinea Pigs. Young stock for sale, females, \$1.50; males, \$1.00. Pleasant Hill Caviary, 1629 E. Florida St., Springfield, Mo.

WHITE WYANDOTES.—100 choice cockerels, free range, exhibition and trap-nested stock. Rezal strain. Also 200 Barred Rock hens, pullets, and cockerels, Thompson strain.

Clifton Smith, Salesville, Ohio.

FOR SALE.—1 complete set of volumes of Gleanings, from the first up to 1919. These have been the property of Geo. W. York, well-known beekeeper. Any one interested, write us direct.

A. I. Root Co., Dept. U-2, Medina, O.

FOR SALE.—California Wonder Corn for seed. The greatest producing corn known. The yield is twice to three times that of ordinary corn. Order now for November and December delivery. Price, 10 pounds, \$3.50. James McKee, Riverside, Calif.

\$30,000 WORTH OF Bee Supplies



All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

Will Take Beeswax in Trade at Highest Market Price.

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

Beeswax Wanted

In big and small shipments to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1918. We are paying higher prices than ever for wax. - We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck

The Comb-foundation Specialist
Augusta, Kansas

Established 1899

Our Food Page—Continued from page 661.

of a practical, inexpensive kitchen-table covering. Zinc is now extremely expensive and is not attractive when it gets old; aluminum is expensive and dents easily; the sanitary white enamel tops are fine but expensive, and if the table is in front of a sunny window the glare from the white top is rather objectionable. Many use table oilcloth, but this is never satisfactory for hard use. As for the bare table top of our mother's and grandmother's day, with its constant need of scrubbing, modern housekeepers will not tolerate it. Try covering your table with the ordinary printed floor linoleum, cut to fit the top and secured firmly with brads. This is very durable, sanitary, easily kept clean, and if one selects a small pattern of colors to harmonize with the rest of the kitchen it is good-looking. If it becomes marred by accident it can be replaced for a dollar or less.

Have you ever tried keeping a roll of paper toweling near your kitchen sink? It has so many uses. A sheet of it on the table beside you when you are preparing fruit or vegetables is just the thing for wiping your fingers when the telephone bell rings, as it always does when you are engaged in some work which soils your hands. A bit of clean paper toweling is preferable to a brush or rag for oiling baking pans. Cookies or drop cakes may be cooled on it instead of having one of your clean kitchen towels covered with grease spots. It is preferable to crumpled brown paper for draining doughnuts and other foods fried in deep fats. When you serve such fruits as whole peaches or apples they may be dried on a paper towel after washing. Celery or lettuce may be wrapped in it to place in the ice box. If you wish to oil your loaves of bread before covering them for the last rising, cover them with a paper towel before you put the other towel over. When you are unfortunate enough to spill cream or something equally messy on your kitchen floor, wipe it up with a paper towel before you wash it with a cloth.

Yes, I am aware that paper towels are expensive, but laundry work is even more expensive.

Now I can imagine someone saying, "Mrs. Puerden seems to overlook the modern tendency to beautify the kitchen." No, I don't; I wish every Gleanings housekeeper could have a kitchen just as dainty and pretty as any room in her house, but I do not believe anything is gained by making a kitchen masquerade as something else. It is primarily a place in which to prepare food. A kitchen, such as I have described, could be carried out with white or ivory enamel shelves and woodwork, and, with the very attractive utensils now to be obtained in the stores, would look better to a housekeeper who recognized its convenience than a kitchen where all the working equipment was hidden.

FLOUR IS HIGH

Why not live better and save money, too?
Grind your wheat into Best Whole Wheat or Graham Flour. Your doctor knows how healthy these are. Make the BEST Corn Meal, the old-fashioned sort you can't buy at any price nowadays.

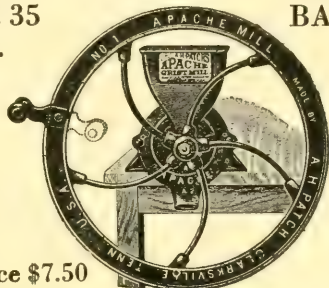
Do all sorts of fine and coarse grinding with an

APACHE MILL

Wt. 35
lbs.

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Price \$7.50

This Mill Makes Best Corn Meal, Graham Flour, Rye Flour, Chops, Hominy, Cracks Peas, Grinds Coffee, Spices, etc. Perfect adjustment for coarse or fine work. Will send Mill prepaid by Express **\$7.50**

APACHE GRIST MILL—Largest capacity, fastest grinding, easiest turning handmill. Does more, lasts longer.

A. H. Patch, Inc., Clarksville, Tenn.
The Blackhawk Corn Sheller Inventor
Invented 1885

Tin Containers

A Complete Line. Your Orders Solicited for

Friction-Top Cans and Pails

Five-gallon Square Cans
with Screw or Solder Cap

Packers' Cans
Open Top or Hole and Cap Styles

Wax Sealing Preserving Cans

Unexcelled manufacturing and shipping facilities.

W. W. Boyer & Co., Inc.
Baltimore, Maryland

BEEKEEPER PARTNERS

For any or all particulars, address J. T. CALVERT, Treasurer

THE A. I. ROOT CO. -- MEDINA, OHIO

We would welcome all good beekeepers as partners in this old but still fast-growing business. Our 7 per cent preferred stock offers the opportunity. Every safeguard surrounds this investment.

MOORE'S STRAIN OF ITALIANS

Noted for Honey Gathering,
Hardiness, and Gentleness

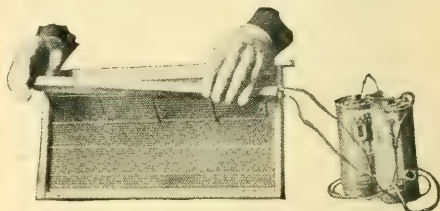
Untested queens - - - \$1.50; 6, \$8.00; 12, \$15.00
Select Untested - - - 2.00; 6, 10.00; 12, 19.00

Safe arrival and satisfaction guaranteed.

I intended to run my apiaries for honey this year; but so many of my customers say that they must have "Moore" queens, I am devoting part of my home apiary to queen-rearing.

J. P. MOORE, MORGAN, KY.

Electric Imbedder



Price without Batteries, \$1.25

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market. For sale by all bee-supply dealers.

Dadant & Sons Manufacturers Hamilton, Ills.

Ontario Bred Italian Queens

NOW IS THE TIME

TO REPLACE THOSE OLD BLACK QUEENS

with young ones of a gentle strain. Great honey gatherers and resistant to European Foul Brood.

Select Untested - \$1.25 each; \$13.00 dozen

Untested - - - \$1.00 each; \$10.00 dozen

RUMFORD & FRETZ -- -- FOREST, ONTARIO

**BANKING
BY MAIL
AT 4%**

SEND US A CHECK, Money-order, draft, or cash by registered letter for any amount which you wish to deposit with this strong old-established institution.

The money will reach us safely by mail and you can thus build up your surplus account, at 4 per cent interest, conveniently and with no trouble to yourself.

THE SAVINGS DEPOSIT BANK CO.

A.T. SPITZER, Pres.
E.R. ROOT, Vice Pres. E.B. SPITZER, Cash.

MEDINA, OHIO

BEEKEEPER'S SUPPLIES

Every Thing Required for Practical Beekeeping

Order your supplies NOW and save money by taking advantage of the early order cash discounts. We are well prepared to take care of your business; send us your inquiries and we will be pleased to quote you our prices. Send us your name and address and we will mail you one of our new 1920 catalogues when ready.

AUGUST LOTZ COMPANY . . BOYD, WISCONSIN



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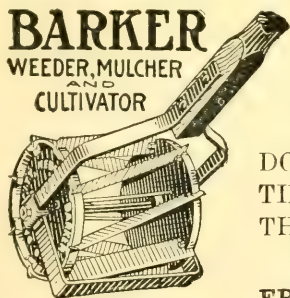
THE MOST PRACTICAL AND ECONOMICAL CONTAINER

For EXTRACTED or
STRAINED HONEY

SUPERIOR TO ANY OTHER SINGLE SERVICE CONTAINER MANUFACTURED. WRITE FOR PARTICULARS AND PRICES

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BARKER
WEEDER, MULCHER
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Weeds and Mulches

In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.*

A boy can use it. Five sizes. Send today for book, free and postpaid.

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Gentlemen.—Send me postpaid your free book and Factory-to-User Offer.

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The Largest Eastern Distributors
of Pure Honey "As Made by the Bees"

We buy for spot cash Honey and Beeswax
Direct from Reliable Producers. Selling
Agents in all Principal European Cities.

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217 Broadway

Complete Line of Beekeepers' Supplies

Catalog on Request

F. Coombs & Sons, Brattleboro, Vt.



HONEY

FINEST Michigan
Raspberry, Basswood
and Clover comb and

extracted honey. Unexcelled for quality.

Crate 6 cases (24 lb) Fancy Comb. \$39.00

Crate 6 cases (24 lb) A No. 1 Comb 36.00

Crate 6 cases (24 lb) No. 2 Comb 33.00

Crate 6 cases (24 lb) Extra Fancy 42.00

Two cans (120 lbs) Extracted 30.00

Send Today for Free Sample

W. A. LATSHAW COMPANY, Clarion, Mich.

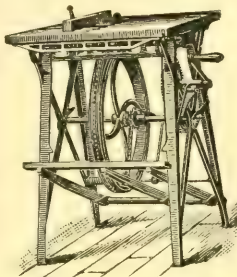
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W F. & JOHN BARNES CO
545 Ruby Street
ROCKFORD, ILLINOIS



IT PAID---

Gentlemen:—Please take our advertisement out of your Classified columns of Gleanings in Bee Culture as we have orders for all the queens that we can get out up to the end of the season. We have had a very busy season, thanks to your paper, and will be with you again next season. With best wishes, I am

Very truly yours,
A. E. CRANDALL

Gleanings in Bee Culture
Medina, Ohio

Established 1885



It will pay you to get our catalog and order early.

Beekeepers' Supplies

The Kind You Want and The Kind
That Bees Need.

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Bees wax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

Leininger's Strain of Italians

have stood the test for 35 years. We will offer queens for sale from this famous strain, beginning June, as follows:

One untested queen, \$1.50; 6, \$8.00. One tested queen, \$2.00; 6, \$11.00. Select breeders, \$15.00 each.

Fred Leininger & Son, Delphos, O.

BEE - SUPPLIES

OUR LINE COMPLETE

20 per cent Discount

on all hives and hive material and 10 per cent discount on foundations for all orders received after September 15th and up to December 1st. Our goods can't be beaten. Order now and save money.

C. C. Clemons Bee Supply Co.
126 Grand Ave. KANSAS CITY, MO.

To Our Readers in Spanish Speaking Countries

A vacancy occurs in our Foreign Department for a young Latin-American or Spaniard desirous of obtaining a thorough knowledge of American business methods. One interested in beekeeping would be preferred. A slight knowledge of English is necessary.

The A. I. Root Co., Medina, Ohio

GET YOUR CHURN FREE



17,000 Leader Churns, in use all over the country, have removed the dread of churning day by saving time and labor. They make more and better butter; 5000 unsolicited testimonials. A. N. Hollis, Lawrenceburg, Tenn. says: "Churning was a burden until we got the Leader. Now the children c-y to churn. We can churn in 3 or 4 minutes." "Special deal—steel frame—light weight—easily cleaned."

Costs a Lifetime

Sold under two plans. Simply order a trial churn now, without sending any money; then, when satisfied at end of thirty days, remit the price shown below, or take orders from your friends and let your commissions pay for your churn, thus securing your Leader Churn Free.

3 Gal. \$5.00 Churns 11-2 Gallons
5 Gal. \$5.50 Churns 3 Gallons
8 Gal. \$6.00 Churns 4 Gallons

Send No Money Order direct from this Ad. Check size of Churn wanted. You pay express charge only. Nursery agents or farmer agents take trial orders. We deliver and collect; no money needed.

Novelty Mfg. Co., Box 722 Abingdon, Ill.

CHURNS IN 3 MINUTES

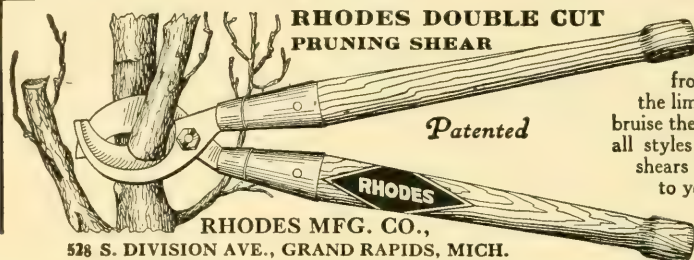
BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives, and shipping boxes; 3-frame nucleus colonies, and bees by the pound. Tested Italian queen, \$2.00; untested, \$1.50.

I. J. STRINGHAM, GLEN COVE, N. Y.

"Special Crops" A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. \$1.00 per year. Sample copy 10c. Address

Special Crops, Box G, Skaneateles, New York



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PRUNING SHEAR**

Patented

**RHODES MFG. CO.,
528 S. DIVISION AVE., GRAND RAPIDS, MICH.**

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices.

"falcon"

Your Duty — *Do You Know It?*

It is to get ready for the coming season and be ready for the first honey flow. This will net you profits. Prepare your bees for a big year and take no chances. Get the best to do with and have the best results.

Our Duty — *Do We Know It?*

We get the beekeepers ready for the big season. Supply them with the best of everything with which to work and get the best results. Send us a list of your requirements for quotation. TO DELAY MEANS LOSS TO YOU. **"Falcon"** service cannot be beat. Catalog and Simplified Beekeeping on request.

W. T. Falconer Manufacturing Company

Falconer, New York

"where the best bee hives come from."

"falcon"

Save Money, Freight --- Buy Now

By ordering Root quality bee supplies today you will secure our October early order cash discount of 5 per cent.

There is every reason to believe that there will be a heavy increase in freight charges on or before Jan. 1, 1920. Many railroad officials estimate the advance from 30 to 40 per cent.

Our early order cash discount with the saving you can secure in freight will more than pay the interest on any investment in our goods for a year or more, should you find that next season you had more bee supplies than you needed.

Order Root Goods from Your Nearest Distributor

Send your inquiry to our nearest branch, carload jobber, or wholesale dealer, who will quote you promptly. If they are unable to supply you send us your list and we will tell you where you can get our bee supplies near you and at the lowest freight rates.

THE A. I. ROOT COMPANY :- :- MEDINA, OHIO



THE E-Z-WAY BEE-FEEDER

will save your time and save your bees,
and will satisfy an old established need

A few pounds of sugar syrup will save your weak colonies, they will be worth many dollars to you next season, don't lose one, when it is so E-Z to feed and save them with the E-Z-WAY BEE FEEDER. We send attachments for 3 hives, instructions for using, Feeding, and making the syrup with each feeder. The winter will soon be here; don't delay, order at once, at our risk, 30 days trial, money back if not satisfied. Price \$1, or six for \$5, postpaid. Remit by Money Order, Cash, or Stamps, to

THE HOLDEN MANUFACTURING COMPANY
CLARKSBURG, W. VA.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co

Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

Distributors Root's Goods FOR PENNSYLVANIA

Send for new special catalog featuring the "Simplex"
Super, and giving instructions to beginners

Prothero, Bailey & Goodwin DUBOIS PA.

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1919 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

WANTED—TO PURCHASE COLORADO

Section and Bulk Comb Honey
direct from producers in car lots and less than car lots. Please let us know what you have and submit sample, full description as to weight, and your lowest price to

J. E. HARRIS, MORRISTOWN, TENN.

or our western representative, Mr. R. B. McGuffin,
1165 Emerson St., Denver, Colo.

MASON BEE SUPPLY COMPANY

MECHANIC FALLS, MAINE

From 1897 to 1919 the Northeastern
Branch of The A. I. Root Company

**Prompt and
Efficient
Service**

BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway.

If you have not received 1919 catalog, send name at once.

The BEST LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 10¢ to 200¢ Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
346 E. 5th St., Canton, O.

STATEMENT OF OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., OF GLEANINGS IN BEE CULTURE, PUBLISHED MONTHLY AT MEDINA, OHIO, REQUIRED BY THE ACT OF AUGUST 24, 1912.

Editor, E. R. Root, Medina, Ohio; Managing Editor, H. G. Rowe, Medina, Ohio; Publisher, The A. I. Root Co., Medina, Ohio. Owners: The A. I. Root Co. Stockholders holding 1 per cent or more stock as follows: A. L. Boyden, Carrie B. Boyden, Constance R. Boyden, L. W. Boyden, H. R. Calvert, J. T. Calvert, Mande R. Calvert, A. I. Root, E. R. Root, H. H. Root, Susan Root, all of Medina, Ohio, Ralph I. Bostwick, Seville, Ohio. There are no bondholders, mortgagees, and other security holders, holding 1 per cent or more of total amount of bonds, mortgages, or other securities.

H. G. ROWE, Mng. Editor.

Sworn to and subscribed before me this 23rd day of September, 1919. H. C. WEST, Notary Public.

Special Notices by A. I. Root

OFF FOR FLORIDA ONCE MORE.

Providence permitting, Mrs. Root and I expect to start for our Florida home on the 4th of November. As the materials are already on hand for putting up a second electric windmill, I would start sooner than the above date, but just now I can not afford to miss my vote, no matter what it costs.

THE NEW ANNUAL WHITE SWEET CLOVER.

On page 413, Prof. Hughes, who introduced this new clover, states that the Henry Field Seed Co., Shenandoah, Ia., has in the neighborhood of two acres. I wrote the company in regard to it, and below is their reply:

"Friend Root:—Much obliged for your good letter. Yes; we expect to have a fair supply of seed of the new annual white sweet clover and it will be for sale.

"It multiplies very rapidly, however, and any good gardener can grow a big supply of seed from a small start. We raised two pounds of seed last year from between forty and fifty seeds. We planted it in a row in the garden and gathered the seed by hand. Of course we will not get the same rate of increase this year, as we are giving it field culture and will not try to strip it by hand, but will cut and thresh in the ordinary way. Still we ought to have quite a quantity of seed, probably two or three hundred pounds and maybe more than that.

"I find that the seed needs to be hulled and scarified, same as any other clover. We got a poor stand on what we planted this time because it had not been hulled and scarified, but was simply planted in the hull. Next year we shall know better."

The writer suggests that they shall probably put up a liberal-sized packet of scarified seed at 50 cents a packet. I do not know how soon they will be prepared to fill orders; but in many localities the seed could probably be sown this fall with a good chance of getting enough root to stand over winter.

We have only a limited supply in our garden; so that future applications, perhaps, had better be sent to the seed company as above.

WEIS FIBRE Honey Containers

A neat, clean, leak-proof package for extracted honey. They are inexpensive and the best substitute for glass. Sizes are from 6 ozs. to 5 lbs. Your name and address printed on them at a small additional charge. Send for descriptive price list.

General Agents in Michigan
for Root's Goods.

The early order discount for
October is five per cent on
goods for next year's use.

M. H. Hunt & Son

510 North Cedar St.
Lansing, Mich.

QUEENS

MR. BEEKEEPER

QUEENS

the Season for Requeening is Now Here

We are now in a position to give your orders prompt attention. Our queens are bred from the very best imported stock that can be had. They are hardy, gentle, disease-resisting, and not given to swarming. You take no risk in buying our queens, for we guarantee every queen to reach you in first-class condition, and to give perfect satisfaction in the U. S. and Canada.

Price List for 1919.		One	Six	Twelve
Untested		\$1.25	\$ 6.50	\$11.50
Selected Untested		1.50	7.50	13.25
Tested		2.50	13.00	24.50
Selected Tested		4.00	22.00	41.50
Untested, \$90 per hundred. Selected untested, \$115 per hundred.				

L. L. FOREHAND :- :- :- FT. DEPOSIT, ALABAMA

TEXAS BRED QUEENS

The Success of Beekeeping Depends on Good Young Queens

We will have several thousands for sale this fall—also booking orders for spring delivery. We will guarantee shipments to be made on time. Get our *Free Circular*. September and October is considered the best time for all southern beekeepers to requeen.

These prices are for this year; <i>free circular</i> gives prices for next.		1	6	12	50
Prices of regular Nuclei, also Nuclei on Aluminum Combs given in free circular.	Untested	\$1.25	\$ 6.50	\$11.50	\$40.00
	Select untested	1.50	7.50	13.50	48.00
	Tested	2.00	10.50	18.50	
	Select tested	2.75	15.00	27.00	

One-pound package of bees.....	\$2.40—25 or more	\$2.16 each
Two-pound package of bees.....	4.25—25 or more	3.83 each
Three-pound package of bees.....	6.25—25 or more	5.62 each

We have shipped thousands of pounds for several years all over the U. S. A. and Canada.
Add price of queen when ordering bees.

NUECES COUNTY APIARIES :- CALALLEN, TEXAS

E. B. AULT, Prop.

IMPORTANT ANNOUNCEMENT

Our New Steam Wax Rendering Department will be ready for business by September 8th. We will render your old combs and cappings at the regular terms which are as follows:

TERMS FOR RENDERING EITHER FOR CASH OR ON SHARES.

	Cash Terms.		Share Terms.	
	Old Combs.	Per Lb.	Your Share.	Our Share
On 100 lbs. or more beeswax secured.....		\$0.07	80 per cent	20 per cent
On 25 to 100 lbs. beeswax secured.....		.09	75 per cent	25 per cent
On less than 25 lbs. beeswax secured.....		.14	60 per cent	40 per cent
	Cappings.			
On 100 lbs. or more beeswax secured.....		.04	90 per cent	10 per cent
On 25 to 100 lbs. beeswax secured.....		.07	80 per cent	20 per cent
On less than 25 lbs. beeswax secured.....		.09	75 per cent	25 per cent

Freight or express charges will be charged to the shipper. For your share of the beeswax we will pay you our best cash price, quoted on application any time, or our trade price to apply on bee supplies you may need. Should you be in need of comb foundation your share of the beeswax may be worked into foundation at our regular working prices. Send for special price list. Also, we expect to begin handling honey by October 1st, as our new equipment will be ready by this time. While at the New York State Fair arrange to make our Exhibit your Headquarters as all Beekeepers aim to do. Wednesday and Thursday are Beekeepers' special days.

The Derooy Taylor Co., :- :- Newark, Wayne Co., New York

QUEENS

We guarantee safety from all foul brood disease, because there is not now and never has been any foul brood in our part of the country. Our bees and queens are absolutely free from it. Remember, that

LAST YEAR WE REARED 12,348 QUEENS

which we believe to be the world's record among queen-breeders. We could do this only because of the reputation for quality and service that we have established among beekeepers far and wide.

PRICE OF QUEENS.

After June 15th	1	12	50 or more
Untested	\$1.00	\$11.00	\$.90
Select Untested	1.50	15.00	1.30
Tested	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

Prices of Dr. Miller's Queens

After June 15th	1	12	50 or more
Untested	\$1.25	\$13.25	\$1.10
Tested	2.00	22.00	1.75

Breeders, \$5.00, \$10.00, and \$15.00.

We have a full line of Root's goods and guarantee to fill all orders within three days after receipt and all mail orders the same day received. Try us on sections, foundation, smokers and all small orders by mail. A full line manufactured from Cypress, the Wood Eternal, which we guarantee to please you. Solid one-piece covers made from the best wood in the world, without crack or crevice, at the price of other wood covers. Beeswax wanted.

SEND FOR CATALOG

The PENN COMPANY

PENN, MISSISSIPPI

A STANDARD HONEY GRADER

The honey producer need—and has long needed—a standard honey-grader by the use of which he could absolutely determine the grade of his honey as to color, whether he lives in California or Maine. There has heretofore been no standard. The producer of honey and the buyer of honey have each had in his own mind his own standard. Accordingly they have differed and disagreed, resulting in confusion and misunderstanding and sometimes in bad feeling. This condition has been a positive detriment to the honey business everywhere.

Recognizing the great need of a standard honey grader, so that honey could be graded just as grain is accurately graded in all markets the same experts in the A. I. Root Company set to work on the problem several years ago. Experiments of every kind in the testing of colors and color materials were begun. A large number of experts in the honey industry throughout the country were consulted as to the standard of shades of honey to be adopted and the number of such shades to be made standard. Samples of shades were submitted to these various experts and to



many large honey producers, till a practically unanimous agreement was reached in adopting shades of "water white," "white," "light amber," "amber," and "dark." Only after comparing the colors of various honeys from every part of America were these shades adopted as standard.

Experiments with colored liquids in small containers and many combinations of colored glass were made. The problems and difficulties in securing exact shades of colors and permanency of such colors were many. Simplicity, practicability and permanency as well as definiteness of color were kept foremost in mind. It was finally determined that colored glass and only colored glass could meet the never-fading and never-changing requirements in furnishing standard honey colors. Paint, colored celluloid, colored liquids, etc., all change color when long subjected to light. The glass-makers of America and Europe were then consulted, and asked to match in glass the shades of honey agreed upon as standard. No American glass-maker could meet the requirements; but a glass-maker of France was found who could—and did, altho at very large expense.

THE ROOT HONEY GRADER

So today, after years of experimenting and advising, we are prepared to furnish the honey producers of America a standard honey-grader—simple, convenient and certain. It has already been adopted as standard by the California Honey Producers' Cooperative Exchange and by Airline. The accompanying illustration shows at a glance what it is and how it is used. The five standard honey shades are reproduced in small glass plates which are inserted in a wooden frame provided with round cut holes beside each glass plate for the insertion of a small glass container which is standardized size. A sample of the honey to be graded is put in this container, which then may be inserted in any one of the holes between the grade colors nearest matching it, and the grade is thus determined.

We shall be glad to furnish full information to all producers of honey interested in this truly "long-felt want."

On early-order discount of 5 per cent on all beekeepers supplies ordered in October

THE A. I. ROOT COMPANY, MEDINA, O.

What Do You Do with Your **BEE SWAX**

Get Our Prices Before
Disposing of It.

IN TIMES PAST the beekeeper rendered his combs more or less well and sold his beeswax to the first party offering on it.

NOW, the careful beekeeper will either ship all his combs and scrapings to a modern rendering plant to be rendered into beeswax or will render them carefully himself and sell his beeswax at the highest price for cash or apply on his order for bee supplies.

We Render Combs into Beeswax.

We work Beeswax into Dadant's Foundation.

We Buy Beeswax for Highest Cash and Trade Prices.

Write to us for prices before disposing of your season's beeswax. We will send you shipping-tags, our best prices either f. o. b. Hamilton or your shipping station, and full shipping instructions. Give quality and quantity of beeswax you have to offer when writing.

Prices on rendering comb into wax and on working beeswax into DADANT'S FOUNDATION for the asking.

Dadant & Sons, Hamilton, Ills.

Gleanings in Bee Culture

Vol. XLVII

NOVEMBER 1919

No. 11

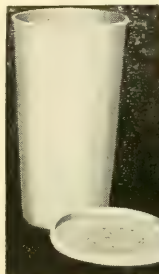


A PORTO RICAN APIARY

We are always in the market for HONEY and BEESWAX.
Do not sell until you have seen us.
We will pay you spot cash for any thing you sell us.
Get our prices on cans and cases.

Los Angeles Honey Co.

633 Central Bldg., Sixth and Main Sts.
Los Angeles, California
Telephones: Home 10419, Main 5606



SEAMLESS PAPER CONTAINERS

THE MOST PRACTICAL AND ECONOMICAL CONTAINER



For EXTRACTED or STRAINED HONEY

SUPERIOR TO ANY OTHER SINGLE SERVICE CONTAINER MANUFACTURED. WRITE FOR PARTICULARS AND PRICES

THE SANITARY PAPER BOTTLE CO., 413 Water St., SANDUSKY, O.

Root Service

WE ARE CLOSING THE FIRST SEASON IN

Our New Factory.

BECAUSE OF A LATE START IN GETTING MACHINERY SET FOR OPERATION OUR SERVICE EARLY THIS YEAR WAS NOT UP TO NORMAL.

We are taking advantage of the slack season to make up a surplus stock of standard goods and will be in a position to give prompt service in the future from both offices.

We believe our factory is filling a need for a higher standard of quality in hives, frames, and other beekeepers' supplies in Pacific Coast territory and merits your support.

Our company was incorporated as a California corporation last November, and there are still some shares available for investment.

Let us hear from you whether you are interested in selling honey or beeswax, or in buying supplies, or in making a safe investment.

The A. I. Root Co. of California

1824 E. 15th St.
LOS ANGELES

52-54 Main St.
SAN FRANCISCO

"Griggs Saves You Freight"

TOLEDO

Honey Cans and Cases

Order these early--a limited number of 2d-hand cans on hand at 75c per case.

Honey--Honey--Honey

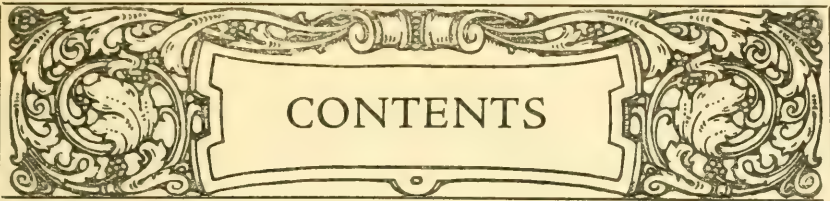
We shall be in the market for any quantity, both comb and extracted. . . Mail sample of extracted and state price asked in first letter.

BEESWAX always in demand
--Cash or in trade.

GRIGGS BROTHERS CO.

Dept. No. 25

Toledo, Ohio



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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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Assistant Editor

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Managing Editor

THIS HOUSE IS YOUR HOUSE-- USE IT!



WHAT THIS HOUSE DOES FOR YOU

It Buys---

Your Extracted Honey
Your Comb Honey
Your Beeswax
Renders Your Old Comb

It Gives You---

Service
Price
Quality
Prompt Remittance

It Handles for You

LEWIS Beeware
Root Smokers, Extractors
DADANT'S Foundation
Honey Containers

 **HONEY** 

Send us a sample of your honey. Tell us how much you have, and what you want for it. . We are always ready to buy. . No waiting for your money when you ship to us. . We remit the day your shipment arrives.

THE FRED W. MUTH COMPANY

Pearl and Walnut Sts.

"The Busy Beemen"

Cincinnati, Ohio

Superior Foundation Again Wins

Superior Honey Co.
Ogden, Utah.

Linden, Alabama.
Sept. 5, 1919.

Gentlemen:—I have tested your Superior Foundation with that of the party who claimed that the bees would take to theirs first, and also with that of another manufacturer. I first selected 3 two-story hives, from which I extracted honey, and noted the amount of honey from each hive. There was less than a pint of honey difference in any two of them, indicating that they were of about equal strength. I then filled 3 lots of 9 frames each with foundation of the three makes, being careful to write the name of each manufacturer on the frames in which I placed each sheet of foundation. Then I placed each 9 frames in a hive body, placing the covers on and setting them on the hives, not knowing on which hive anyone's foundation was placed. Then I opened them and wrote each name on the outside, numbering the hives and the date placed. With the remaining sheets I filled 5 frames with Superior Foundation and 5 frames with Dadant's foundation, which was bought at San Antonio, Texas, and which was not opened up until the same time yours was opened. I tried to be fair with everyone, for I wanted the best foundation, and if theirs was what they claimed I wanted it and nothing else.

This test was made on Aug. 10th, 1919. Today, Sept. 5th, 1919, the Superior Foundation on hive No. 2 is every single frame drawn out and filled with honey and brood. On hive No. 3 the Dadant foundation is about one-half drawn. On hive No. 1 the other make of foundation is almost fully drawn out and is being filled with brood and honey. I would estimate that Superior Foundation is 95 per cent drawn, Dadant's about 45 per cent, and the other make about 65 per cent. On hive No. 4, one-half superior foundation and one-half Dadant's, the bees began on Superior Foundation and filled it out, and filled 3 frames of Dadant's, or 100 per cent Superior against 60 per cent Dadant's.

Aside from all this I did not see the slightest defect in any sheet of Superior Foundation. Your foundation is also a little longer than Dadant's, and almost fills the Hoffman frame, while theirs has too much play at each end.

If you will have a supply I will buy my foundation from you next season, and my friends will doubtless do the same.

Very respectfully,

J. E. SUTTON.

USE THE BEST

If your dealer cannot furnish you Superior Foundation write us for special prices

Superior Honey Company -:- Ogden, Utah
(MANUFACTURERS OF WEED PROCESS FOUNDATION)

HONEY MARKETS

Owing to the extreme sugar shortage now existing the honey market is in a very strong position, and prices are likely to advance materially.

U. S. Government Market Reports.

HONEY ARRIVALS OCT. 1-14.

Medina, O.—8,960 pounds from Ohio, 11,398 pounds from Kentucky, 5,879 pounds from Pennsylvania arrived.

SHIPPING POINT INFORMATION—OCT. 14.

Los Angeles, Calif.—Demand improving, movement good, market stronger. Carloads f. o. b. usual terms, per pound: white orange blossom mostly 20c, white sage mostly 20c, extra light amber sage 18½-19c, light amber alfalfa 16c. Beeswax, demand and movement moderate, price to beekeepers in 1 c. 1. lots, mostly 40c per lb.

San Francisco, Calif.—Demand and movement active on account of sugar shortage, market firm. Prices paid to beekeepers: extracted, per lb., light amber alfalfa 14-15c, sage 17-19c, white alfalfa 16-18c, orange sage 18-20c.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the prices at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding two weeks. Prices represent current quotations.)

Cleveland.—Supplies moderate, demand and movement moderate, market steady. Sales to jobbers: extracted, per pound, California, white clover 20-24c, mostly 22-23c, light amber 19-21c. Comb and beeswax, too few sales to establish market.

Cincinnati.—3 Colorado arrived, demand and movement moderate. Extracted, Colorado, white clover, 21c per lb. Comb, Colorado white clover, \$7.50 per 24-section case. Beeswax, demand and movement moderate, no change in prices, average yellow 42c per lb.

Kansas City.—10 cases arrived since last report, demand and movement moderate, market steady. Sales to jobbers: extracted, California 20c per lb.; comb, Missouri, 24-section flat cases No. 1 light \$8.00.

Philadelphia.—Approximately 27,000 lbs., 250 cases New York, 33,000 lbs. Southern, 22,000 lbs. Mexican, 300 cases California, 34 cases Maryland arrived. Demand and movement improving, market firm. Extracted: sales to jobbers, Southern, amber 19½c, light amber 22c per lb., Mexican amber \$1.54-1.58 per gallon. Purchases by local wholesalers f. o. b. Philadelphia, southern amber 19c per lb.; Maryland white clover 19c per lb.; New York white clover 20-20½c per lb.; California white orange 21½c per lb.

St. Paul.—Supplies moderate, demand and movement slow, market steady, quality and condition generally good. Sales direct to retailers: comb, Western, fancy white, 24-section cases \$7.50-7.75. Extracted, too few sales to establish market.

Denver.—Approximately 70,000 lbs. extracted and 4,500 cases comb arrived. Supplies moderate. Demand and movement good for comb, demand and movement slow for extracted, market steady, little change in prices. Sales to jobbers: comb, Colorado, No. 1 white, 24-section cases \$6.50-6.75. Extracted, white, per lb. 18-20c, light amber 17-18c. Beeswax, light 38c per lb.

Chicago.—1 Colorado, 1,000 lbs. Illinois, and 1,000 lbs. Wisconsin arrived, demand and movement good, market steady. Sales to jobbers: various States, extracted, white alfalfa 19-20c, light amber 17-19c. Comb: No. 1, 24-section cases \$6.75-7.00. Beeswax, demand and movement slower, market steady, light 50c, dark 45c per lb.

Minneapolis.—Supplies moderate, demand and movement slow, market steady, quality and condition generally good. Sales direct to retailers: comb, Western, white fancy, 24-section case \$7.50-7.75. Extracted in 60-lb. cans, 18-20c per lb.

St. Louis.—Supplies very light, demand and movement slow, market steady. Sales to jobbers: extracted, Southern amber, per lb. in barrels 14-15c, in cans 15-16c. Comb, practically no supplies on market. Beeswax, prime, 40c per lb.

New York.—1 car California arrived. Imported: 859 barrels, 82 tierces from Porto Rico, 37 barrels from Cuba, 30 boxes from Mexico. Exported: 119

barrels to Holland, 5 barrels to Sweden. Demand slow, market dull. Sales to jobbers: extracted, per lb., New York, white clover 21-23c, Florida, fancy white 23-25c, light amber 20c, amber 16-18c. Per gallon, Porto Rico and Cuba \$1.40-1.45, mostly \$1.40, Haiti \$1.20. Comb, per section, fancy 35c, No. 1 30-32c, No. 2 28c. Beeswax: 200 lbs. Texas arrived. Imported from Porto Rico, 3 seroons, 62 bags, 10 barrels. Demand moderate, market steady. Per pound, light, mostly 44c; dark 42-43c.

EXPORTS OF HONEY, SEPT. 1-15.

Total, 148,304 pounds: to Italy, 66,120; to England, 35,664; to Denmark, 19,333; to Netherlands, 16,080; to France, 5,040; to Philippine Islands, 2,136; to all other countries, 3,931 pounds.

George Livingston,
Acting Chief of Bureau.

General Quotations of Wholesalers.

[These firms are asked to quote the wholesale price they make to retailers. Accordingly their prices must be figured at least one profit higher than the price paid the producer. The large dealers do not quote prices in print that they will pay futrely to producers.]

NEW YORK.—We quote from several of the leading honey dealers in New York City, under date of Oct. 16:

"In honey there is a decided improvement not only in the demand, but sales are heavy owing to the sugar situation, and prices accordingly are advancing. I look for a steady improvement during the next months. In beeswax there is a good demand for yellow stock, of which only limited quantities are available, while the darker grades are more plentiful with little demand. Extracted honey, light amber, in barrels \$1.50; amber \$1.50. Clean, average yellow beeswax, per lb. 43c; dark, 39c."

"Export demand light, owing to high rates of exchange with Europe. Supplies plentiful. Fair demand for domestic use. Very little change in price during past few weeks. Comb honey, fancy \$7.00; No. 1, \$6.50; No. 2, \$6.00. Extracted honey, white 18-19c; light amber, in cans 16-17c, in barrels \$1.40; amber, 14-15c, in barrels \$1.30. Clean, average yellow beeswax, per lb., 43-44c."

CLEVELAND.—Extracted honey, white, 26c; light amber, in cans, 24c. The Wm. Edwards Co.
Cleveland, O., Oct. 16.

CHICAGO.—A few carloads of comb honey have come to this market and it is being sold at \$7.00 to \$7.50 per case. Local receipts are fair; but, as the weights are not uniform, it is sold by weight. Comb honey, extra fancy, per case, \$7.50, per lb. 35c; fancy \$7.25, per lb. 33c; No. 1 \$7.00, per lb. 30 to 31c; No. 2 \$5 to \$6, per lb. 20 to 25c. Extracted honey, white, 20-22c; light amber, in cans, 17-18c; amber, 15-16c. Clean, average yellow beeswax, per lb., 40c.

R. A. Burnett & Co.
Chicago, Ill., Oct. 16.

ST. LOUIS.—Receipts of comb honey still very light, and demand only fair. Fairly good demand for extracted honey, owing to sugar shortage. Comb honey, extra fancy, per case, \$8.00; fancy, \$7.50; No. 1, \$6.00; No. 2, \$5.00. Extracted honey, light amber, in cans, 20; amber, in cans, 18c; in barrels 14-15c. Clean, average yellow beeswax, per lb., 39c.

R. Hartmann Produce Co.
St. Louis, Mo., Oct. 16.

FLORIDA.—Extracted honey, white, 20c; light amber, in barrels, 17c. Clean, average yellow beeswax, 40c.

S. S. Alderman.
Wewahitchka, Fla., Oct. 11.

TEXAS.—Bulk comb honey, fancy, 20c; No. 1, 19½c. Extracted honey, white, 18c; light amber, in cans, 17½c. Clean, average yellow beeswax, per lb., 36c.

J. A. Simmons.
Sabinal, Texas, Oct. 11.

COLORADO.—Local market on comb and extracted honey is improving; there is also a good demand for comb honey in car lots. Comb honey, No. 1, per case, \$7.50; No. 2, \$7.00. Extracted

honey, white, 22c; light amber, in cans, 20c; amber, 15c. Clean, average yellow beeswax, per lb. 38c.

The Colorado Honey Producers Ass'n.
Denver, Colo., Oct. 13.

HAMILTON.—There is very little honey moving the last three weeks, no doubt owing to the large amount of fruit in this district. May be better later on. Extracted honey, white, 26c in 5-lb. pails.
F. W. Fearman Co., Ltd.

Hamilton, Ont., Oct. 16.

CUBA.—Extracted honey, light amber, in barrels, \$1.25; amber, \$1.25. Clean, average yellow beeswax, per lb., 38c.
A. Marzol.

Matanzas, Cuba, Oct. 7.

Quotations From Producers.

The following are the opinions and quotations of actual honey-producers thruout the country received during the last few days:

ARIZONA.—Wholesale price producers are receiving: Extracted, car lots from 13 to 14c; comb, local lots 25 to 30c, no shipments, very scarce. Market stiffening slowly. Wholesale price the beekeepers holding for is 15 to 17c. Condition of colonies good.—W. I. Lively.

COLORADO.—Wholesale price producers are receiving: Extracted 18c; comb \$5.50 to \$6.00. Market quiet. Wholesale price the beekeepers holding for is 18-20c. Condition of colonies good.—J. A. Green.

ILLINOIS.—Wholesale price producers are receiving: Extracted 25c, comb 30c. Market not settled yet. Wholesale price the beekeepers holding for is 25-30c. Colonies generally in good condition and enough stores.—A. L. Kildow.

INDIANA.—Less than ¼ normal crop; none being sold wholesale. Market good. Wholesale price beekeepers holding for is 25c. Condition of colonies good.—E. S. Miller.

INDIANA.—Fall crop off. Average 80 lbs. Wholesale, \$7.20 for comb, 30c for extracted. Brisk demand. Bees in excellent condition for winter. Abundant stores.—S. H. Burton.

IOWA.—Wholesale price producers are receiving: Extracted, 20 and 25c; comb, \$6 to \$6.50 per case, 24 sections. Crop has been good; home market is using more than usual—very active locally. Wholesale price the beekeepers holding for is 20 and 25c for extracted, and \$6.00 to \$6.50 for comb. Condition of colonies never better.—Frank Coverdale.

IOWA.—Wholesale price producers are receiving, extracted 17½c. Market firm. Wholesale price the beekeepers holding for is 20c. Condition of colonies is excellent.—F. B. Paddock.

KANSAS.—Wholesale price producers are receiving: Extracted 20-25c; comb, \$6.00-\$6.35. Market good. Wholesale price the beekeepers are holding for is 25c. Condition of colonies is good.—A. D. Raffington.

KANSAS.—Wholesale price producers are receiving: Extracted, 20c; no comb produced in this vicinity to amount to anything. Demand quite good. Condition of colonies good.—O. A. Keene.

MAINE.—Price offered producers, 45 and 50 cents per pound. Very little honey and scarcely any sugar in this State. Beekeepers are selling at the fairs and grocery stores for 45 and 50c. The bees did get a good amount of honey from apple and clover up to July 10, and a few colonies may be all right, but late swarms are in bad shape. June and July swarms will certainly starve, as the honey flow was cut off July 10, and the bees have not got a particle since.—Wm. A. Harges.

MARYLAND.—Wholesale price producers are receiving: Extracted 22-25c; comb 26-28c. Market improving on account of shortage of sugar. Some beekeepers are holding for 25c wholesale. Fall flow above normal. Colonies heavier than usual.—S. G. Crocker, Jr.

MASSACHUSETTS.—All are small producers in this section, and the honey produced here is nearly all sold at retail right at home. Condition of the market just now seems to be very quiet. Have not heard of any being offered wholesale by beekeepers. Colonies will go into winter quarters in good condition if we can get sugar enough to feed them up; but they are mighty short of stores this fall and no honey coming in, to speak of.—O. M. Smith, Agent.

MICHIGAN.—Wholesale price producers are receiving: Extracted, 20 to 25c; comb, 28 to 37c. The demand exceeds the supply. Little if any comb honey is held for a rise in price. Extracted honey moving freely with a tendency on the part of the producer to hold for 25c or more. In all parts of State where there is a fall honey flow bees will go into winter in excellent condition. In other parts conditions considerably below normal.—B. F. Kinding.

MINNESOTA.—Wholesale price producers are receiving: Extracted 20c; comb, none. Local retail demand is consuming all honey. Beekeepers are selling extracted fast to consumers at 25-30c. Colonies going into winter quarters in good condition.—Francis Jager.

MISSOURI.—Wholesale price producers are receiving: Extracted 25c; comb, No. 2 \$6.20, No. 1 \$7.30, fancy \$8.40. Very little honey on market. Beekeepers holding for No. 1 \$8.00, fancy \$8.40, wholesale. Condition of colonies never better, as far as stores are concerned. Prospects were never brighter for next year's honey crop than at the present.—J. W. Romberger.

NEBRASKA.—Wholesale price to producer: Extracted 23c; have no comb. Fairly good market. Wholesale price beekeepers holding for is 25 to 30c. Colonies in generally good condition.—F. J. Harris.

NEW JERSEY.—Wholesale price producers are receiving: Extracted, 22-25c; comb, \$3.50 doz. Condition of market is normal. Beekeepers are not holding. Probably half of the colonies are short of stores.—E. G. Carr.

OHIO.—Wholesale price producers are receiving: Extracted 20c, comb 25c. Very good market. Honey nearly all sold. Condition of colonies is good, if fed soon. Trouble in obtaining sugar for winter feeding.—Fred Leininger.

OREGON.—Wholesale price producers are receiving: Extracted, 20-25c; comb, \$6.00-\$7.50 per case. Bees have never before gone into winter quarters in better condition.—E. J. Ladd.

OKLAHOMA.—Wholesale price producers are receiving: Extracted, 30c; no comb produced to speak of. Demand greater than supply and large quantities of Texas honey shipped in. Beekeepers not holding. Condition of colonies below normal but improving since the fall rains.—C. F. Stiles.

TENNESSEE.—Producers are offered the following prices: Sections, about \$6.00 per case of 24, off grades less; extracted, 1-lb. jars, \$3.50 to \$4.00 per dozen, No. 5 friction-top pails \$1.20 to \$1.25 each. No market for 10-pound or larger. Market very dull. A fine grade of sorghum syrup of local production is coming on the market; selling at about ½ the price of extracted honey and causing honey sales to fall off. Practically all locally produced honey has been sold; the little on hand is being held for prices as stated above and moving very slowly. Good, nice fall rains have given us a flow of heartsease, boneseet, and aster. Some of the hives are quite heavy. In regard to stores colonies are better than usual.—E. J. Adkisson.

TEXAS.—Wholesale price producers are receiving: Extracted 16c; comb 18c. Condition of market fair. Think honey has all been sold. Colonies locally in very good condition but in parts of the Valley bees are in poor condition. Not enough stores to last thru winter.—A. Lynn Stephenson.

EAST TEXAS.—Wholesale price producers are receiving: Extracted, 18 to 21c; comb, none. Full market. Beekeepers not holding. Majority of colonies with plenty of stores.—T. A. Bowden.

TEXAS.—Wholesale price producers are receiving: Extracted 15c; comb 17½c. No demand. Wholesale price the beekeepers holding for is 18-20c. Bees are storing honey fast at this time. No disease among the bees.—J. N. Mayes.

UTAH.—Wholesale price producers are receiving: Extracted, 20c white, 16½c amber; comb, \$5.50. Market well supplied. Colonies 50 per cent light in stores.—M. A. Gill.

WASHINGTON.—Wholesale price producers are receiving: Extracted, mostly 20c; comb, unknown. Condition of the market is good. Wholesale price the beekeepers holding for, 20c. Condition of colonies is good.—H. A. Scullen.

WISCONSIN.—Wholesale price producers are receiving: Extracted, 20 to 25c; comb, 35c. Little honey offered for sale. Many beekeepers not anxious to sell. Wholesale price the beekeeper holding for is 20 to 25c. Colonies in good condition.—H. F. Wilson.

ONTARIO.—Wholesale price producers are receiving: Extracted, 24 to 27c; comb, \$3.00 to \$3.75 per dozen. Most of the white honey already in the hands of the jobbers. Most beekeepers are getting the prices asked. Second-grade light honey is two to five cents cheaper. Reports show generally but little dark honey. Bees have reared brood until early this month and so will be in good shape where fed. Sugar hard to obtain in a few localities, but this situation is being looked after from this office. —F. Eric Millen.

BRITISH COLUMBIA.—Extracted honey is now fetching 30 c in 60-pound cans, it being retailed at 35 and 40 c. 16-oz. jars are selling at 45c. Very little section honey is produced in B. C. This is being retailed at 40 and 45c.* The crop throughout the Province is about the average. In some spots, large returns are reported, but in each case the report comes from the good beekeeper. European foul brood is still going ahead, and owing to the non-arrival of queens, many colonies will die out.—Williams Hugh.

W. J. Sheppard.

TRADE NOTES

SPECIAL SALE ONE-POUND HONEY-JARS.



We have a surplus stock of these glass jars holding 15 ozs., put up 2 dozen to a case, including lacquered tin tops, at Kretschmer Mfg. Co., Council Bluffs, Ia. The cost of these jars has nearly doubled in the past three years. Our present list price is \$1.70 per case; \$16.50 for 10 cases. Limited stock on hand. Must move stock quickly. Send your orders direct to the point nearest you where the stock is located, mentioning this notice and including remittance with your order. THE A. I. ROOT CO. MEDINA, OHIO.

BEE INFORMATION VERY CHEAP.

To give us more paper stock room, we are going to offer our entire accumulations of old Gleanings, as far back as 1873, for 5c a single copy, and where a complete year is asked for (and we can furnish it) we will charge only 50c for a full year of Gleanings. This is the cheapest beekeeping literature that can be bought. Most of the years we can furnish complete, up to a limited number. But some years are lacking a few numbers. First come, first served.

The A. I. Root Co., Medina, O.

Special Notices by A. I. Root

THAT SECOND ELECTRIC WINDMILL.

The first electric windmill put up about two years ago runs the automobile quite satisfactorily, as I have told you—that is, if we do not average more than four or five miles a day; but it is hardly equal to the task of lighting the house, also heating water, running the cooker, etc., and hence the second one, which is now on its way to our Florida home. With this we hope to do some cooking, and perhaps, to a certain extent, warm the house during cold spells. When we succeed in making that cold north wind (that Florida people dread so much) warm up the home instead of making everybody shiver, we shall —“come a joke” on old Boreas.

“BURBANK'S CREATIONS”; SOME OF HIS LATER ONES.

After I returned from Florida I got hold of Burbank's 1919 catalog, and I sent for the seed of quite a number of things. The Giant white-seeded

sunflower named Manteca I have described elsewhere. A new kind of corn which he calls Sorghum Pop, I am very much pleased with. It is the result of crossing a variety of sorghum with Stowell's Evergreen, and he found after testing that it produces pop corn. The grains are pearly-white, and the ears larger in size than ordinary pop-corn; and the funny thing about it is that a great part of the ears are twins—you might call them Siamese twins; and besides the twins we have quite a number of triplets. It pops beautifully, and I have been greatly enjoying lately putting the pop corn in hot milk instead of the “shredded wheat biscuits” that I have been using for months past. And, by the way, one of those twin ears of pop corn after it has been popped out would bring quite a little money at 5 cents a paper bagful, such bagfuls as you usually buy on the streets of the pop-corn roaster. By the way, it looks to me that this sorghum pop-corn might help largely in reducing the “high cost of living”—that is, if you grow it in your garden and pop it yourself.

There is one more of Burbank's novelties called papago corn. You plant just one kernel in a hill, and that one kernel will send up from three to five stalks (some of them 12 feet high or more); and most of the stalks produce 2 to 4 ears, many of them from ten to twelve inches long; and the corn is a very good sweet corn. The ears, there being so many on a stalk, are not as large around as ordinary field corn, but some of them are almost a foot long. I think it would furnish a tremendous lot of feed to put in a silo, but maybe the number of bushels to the acre might not equal that of ordinary field corn. I do not know. I am so much pleased with the sunflower and the two varieties of corn that I am planning to send a few grains of each to any subscriber to Gleanings who will send me an addressed stamped envelope.

Advertisements Received too Late to Classify

FOR SALE.—Clover and buckwheat honey in 60-lb. cans, two per case.

Bert Smith, Romulus, N. Y.

SUPERS FOR SALE.—100 for 4¼ beeway sections; 40 for 4x5 plain sections. Part new. Bargain. All ten-frame.

Thos. Phillips, Johnsonville, N. Y.

FOR SALE.—300 colonies bees with complete equipment for extracted honey. No disease here.

J. O. Hallman, Helena, Ga.

FOR SALE.—New crop extracted buckwheat honey put up in 10-lb. pails, \$2.25 per pail. Terms cash. Special price on 25 pails or more.

H. Hatton & Son, Andover, R. F. D. No. 3, Ohio.

FOR SALE.—1 to 100 colonies of Italian bees, fine strain with tested queen, in one-story 8-frame single-walled hives, full-depth, self-spaced, Hoffman frames; nearly all wired, \$10.00 each. A few colonies in 10-frame hives, \$12.00 each. All free from disease, f. o. b. here.

Wilmer Clarke, Earlville, N. Y.

WANTED.—To buy the sweet water from melting old combs or cappings.

Edw. A. Winkler, Joliet, R. D. No. 1, Ills.

WANTED.—Two experienced bee men for the season of 1920. One queen-breeder with experience; one with experience in handling bees. State age, number of years' experience and wages. Also give reference.

W. J. Forehand & Sons, Ft. Deposit, Ala.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 40c cash, 42c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival.

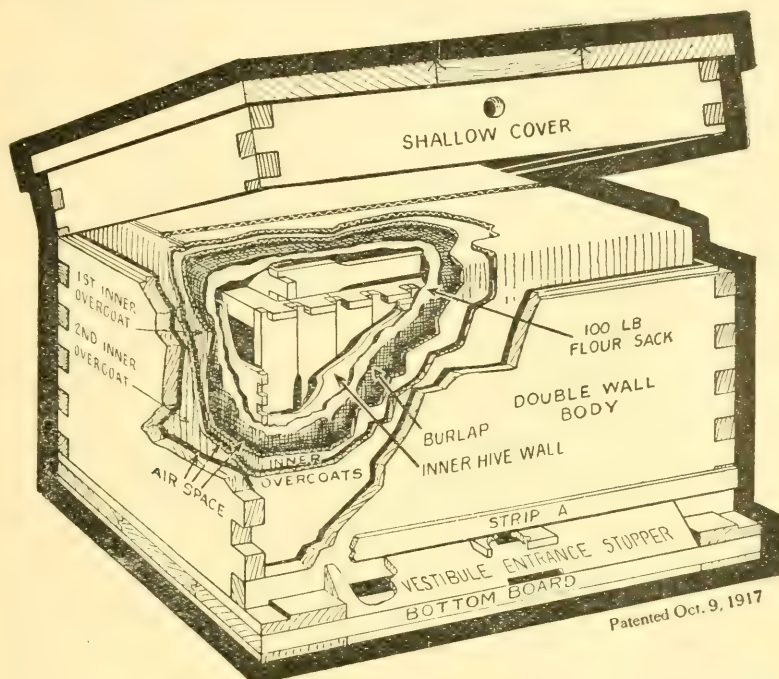
The A. I. Root Co., Medina, Ohio.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co

Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

Winter Problem Solved by the Hive with an Inner Overcoat



The above illustration shows the substantial, compact, neat, and efficient equipment that winters normal colonies of bees perfectly.

It consists of a frame of honey laid over the top of the others. If you have no extras, one can be removed from the brood-nest for the purpose. A 100-pound flour sack is spread over the top and a piece of burlap 34 by 36 inches is laid over this. The First Inner Overcoat is telescoped down over the brood-nest in between the inner and outer hive walls, the flour sack and burlap being carried down with it. This has the effect of wrapping the brood-nest in a blanket. The Second Inner Overcoat is then telescoped down over the first. (The Inner Overcoats are removed in the spring and stored away in the flat.) This insulates the colony with a $\frac{5}{8}$ inner hive wall, with a flour sack and burlap wrapped about it, two thicknesses of corrugated paper board around the sides and ends and four thicknesses over the top, together with the intervening air spaces and the $\frac{1}{2}$ outer hive wall. The work is done quickly and easily with no litter of packing materials.

It will pay you to try out a sample shipment this fall. For the next 60 days, we will furnish five hives equipped as shown above for \$27.50, f. o. b., here.

TIN HONEY PACKAGES.

2	lb. Friction top cans,	cases of 24
2	lb. Friction top cans,	crates of 612
2 1/2	lb. Friction top cans,	cases of 24
2 1/2	lb. Friction top cans,	crates of 450
5	lb. Friction top pails,	cases of 12
5	lb. Friction top pails,	crates of 100
5	lb. Friction top pails,	crates of 203
10	lb. Friction top pails,	cases of 6
10	lb. Friction top pails,	crates of 113

Special Prices.

Crates of 100 five-pound pails.....	\$ 8.00
Crates of 200 five-pound pails.....	15.00
Crates of 100 ten-pound pails.....	12.50
Sixty-pounds cans, two in a case, per case.....	1.15

Shipments made from Michigan, Ohio, Illinois and Maryland factories.

A. G. Woodman Co., Grand Rapids, Mich., U. S. A.

PERFECTION

cannot be attained by human effort. It belongs to the realm of the infinite. Yet we believe that we have gone to the human limit in making and supplying to the beekeeper and his bees

DADANT'S FOUNDATION

It represents the result of years of concentration, of generations of experience. It is our special product—the approach to our ideal of **Perfection**.

None of our experiments warrant any radical change in its texture or quality. We leave it to the bees to judge.

**NO WONDER IT IS
PREFERRED BY ITS THOUSANDS
OF SATISFIED USERS**

Stipulate Dadant's Foundation when you place your order for your season's supplies.

If Your Dealer Hasn't It—Write to Us

DADANT & SONS
HAMILTON, ILL.

Every inch, every pound, every ton, of Dadant's Foundation equal to the best we have ever made.

GLEANINGS IN BEE CULTURE

NOVEMBER, 1919

BEEKEEPERS FACE A CRISIS

Sugar Shortage Now Demands Immediate Action in Many Sections of the Country. Just What Beekeepers Can and Should Do at Once.

The danger of starvation now threatens unnumbered thousands of colonies of bees in the eastern and central United States, because of an unprecedented sugar famine. It is nothing short of a catastrophe that menaces the beekeepers.

It was last month that we published a telegram from Dr. E. F. Phillips, explaining how beekeepers could obtain the much-needed sugar for winter stores. We regret to say that this arrangement has not worked out. It should be distinctly understood that this is due to no fault of the Sugar Equalization Board. As soon as the October Gleanings was out the Board was simply swamped with so many appeals for sugar that they were quite unable to supply the demand.

The situation, the country over, is that there is little or no sugar to be had, and there will be little before January 1st next.

Beekeepers are in the greatest need of sugar in New York, Pennsylvania, the New England States, North Carolina, Georgia, Ohio, Indiana, Illinois, and parts of Michigan, Wisconsin, Minnesota, Iowa, and perhaps elsewhere. Unless steps are taken immediately, disaster will follow.

This great sugar shortage has been caused by the unusual consumption of sugar brought about by prohibition and the tendency to use more sugar than ever as soon as the restrictions were removed. The consumption of sugar during the first nine months of the present year greatly surpassed the total amount consumed in 1918.

Of the vast amounts of sugar consumed in the United States, a great part of it is used east of a line running thru Buffalo and Pittsburg. According to a recent ruling, all cane sugar from the West Indies will be distributed east of this line. Therefore all beekeepers west of that line must depend on beet sugar (just now coming into the market) for wintering their bees, and all east of that line on cane sugar.

Those beekeepers east of Buffalo needing sugar to keep their bees from starvation should, if possible, combine for the purchase of sugar in carlots, as it can be obtained there in carlots—and in carlots only. Beekeepers in New York should send a telegram immediately to G. H. Rae, Extension Division, Cornell University, Ithaca, N. Y., stating their needs. Those in Pennsylvania should immediately telegraph to Prof. J. A. Sanders, Bureau of Plant Industry, Harrisburg, Pa. Everywhere else east of the Buffalo-Pittsburg line, beekeepers should club together and buy in carlots, sending their order directly to the United States Sugar Equalization Board, 111 Wall St., New York, naming one consignee.

West of this line beekeepers may wire directly to the beet-sugar refineries, if they club together and order in carlots. But it would be a much better plan to get in touch immediately with the local county agricultural agent, the state apiarist or state inspector and have him wire to one or more of the nearest sugar refineries stating the beekeepers' needs and giving financial references. In order to avoid delay it would doubtless be a good plan to name a bank as consignee. The sugar refineries or companies will insist that the beekeeper guarantee the sugar will be used for his bees only.

We know of one county agent who at the suggestion of the beekeepers of his county got busy without a moment's delay and has now obtained sugar from a nearby sugar refinery and is supplying the beekeepers of four counties with all the sugar needed. County agents elsewhere will do as much for the beekeepers if the beekeepers will at once appeal to them.

The list of beet sugar refineries which may be appealed to, is as follows: Continental Sugar Co., Detroit, Mich.; Holland-St. Louis Sugar Co., Holland, Mich.; Western Sugar Refining Co., Marine City,

Mich.; Menominee River Sugar Co., Menominee, Mich.; Mount Clemens Sugar Co., Mount Clemens, Mich.; Owosso Sugar Co., Owosso, Mich.; Michigan Sugar Co., Saginaw, Mich.; Columbia Sugar Co., Bay City, Mich.; West Bay City Sugar Co., Bay City, Mich.; Michigan Sugar Co., Crosswell, Mich.; Ohio Sugar Co., Ottawa, Ohio; Toledo Sugar Co., Rossfield, Ohio; Continental Sugar Co., Toledo, Ohio; Charles Pope, 332 S. Michigan Ave., Chicago, Ills.; Chippewa Sugar Co., 428 Grand St., Milwaukee, Wis.; U. S. Refining Co., 428 Grand Ave., Milwaukee, Wis.; Wisconsin Sugar Co., 428 Grand Ave., Milwaukee, Wis.; Minnesota Sugar Co., Chaska, Minn.; Garden City Sugar and Land Co., Garden City, Kans.; Sheridan Sugar Co., Sheridan, Wyo.; Garden City Sugar and Land Co., Colorado Springs, Colo.; Holly Sugar Co., Boston Bldg., Denver, Colo.; Amalgamated Sugar Co., Ogden, Utah; People's Sugar Co., Salt Lake City, Utah; Utah-Idaho Sugar Co., Salt Lake City, Utah; Utah-Idaho Sugar Co., Grants Pass, Ore.; Alameda Sugar Co., 310 Sansome St., San Francisco, Calif.; Spreckels Sugar Co., 60 California St., San Francisco, Calif.; Santa Ana Sugar Co., Santa Ana, Calif.

To each sugar company in the above list, appeal has been made by B. F. Kindig, president of the National Beekeepers' Association, in the following letter sent Oct. 18:

Gentlemen.—A crisis threatens thousands of beekeepers in the Northern Central States because of the present sugar shortage. Owing to a small honey crop, very many bees must be fed sugar before being placed in winter quarters, or starvation will result.

Not only is a large property value at stake, but the chief source of livelihood for a large number of people is endangered.

The Sugar Equalization Board has informed The Apicultural Division of the U. S. Dept. of Agriculture that beekeepers west of a line thru Buffalo and Pittsburg must seek to relieve their needs for sugar by direct appeal to the beet sugar manufacturers.

The beekeepers now in urgent need of sugar make such appeal to you thru their national organization.

I should appreciate a reply as to whether you can meet the beekeepers' needs, and, if so, whether you can supply individual beekeepers in less than car lots or must shipment be in car lots only.

It is understood that sugar asked for by beekeepers shall be used only for feeding bees.

Yours very truly,

B. F. KINDIG,

President National Beekeepers' Ass'n.

About half of these companies Gleanings

has telegraphed, urging that they make every effort to supply the present needs of the beekeepers. The replies received to date show an earnest desire to help the beekeepers. Moreover, in this great crisis of the beekeepers, Gleanings in Bee Culture will undertake to act as agent for securing sugar for all beekeepers of Ohio who are unable to secure sufficient sugar thru their county agents. (We are not sure that we can distribute outside of Ohio.)

The beekeepers of Ohio should try their county agents first, by all means, but, failing to get action in this way, they may wire us at Medina, O., at once, how much sugar they actually need for bees, and whether the shipment should be made by freight or express, it being distinctly understood that the sugar will be used only for feeding the bees. Unless promises now made us for a supply of sugar for this purpose should fail, we shall be able to supply the sugar at once at actual cost to us. Let no time be lost—first come, first served.

We feel certain that the state apiarists or state inspectors of other states will be glad to undertake to do for the beekeepers of their states what we are attempting to do for those of Ohio, namely, to secure sugar for those who cannot get sugar in any other way.

The list of county agents is obviously too long to give but the addresses of the state apiarists or state inspectors for the states west of Buffalo and Pittsburg in the greatest need are as follows: Indiana—Frank N. Wallace, State Entomologist, State House, Indianapolis, Ind.; Michigan—B. F. Kindig, East Lansing, Mich.; Minnesota—Chas. D. Blaker, 4420 Grimes Ave., Minneapolis, Minn.; Iowa—F. B. Paddock, State Apiarist, Ames, Ia.; Wisconsin—H. L. McMurry, Chief Deputy, State Capitol, Madison, Wis.

Let the beekeeper remember that his bees should be saved at any price, for the promise was never brighter than now for a good honey market next year. Those having honey known to be free from American foul-brood germs will find it the part of wisdom to use this for feeding their bees, no matter how high a price honey may now bring.

If unable to obtain enough sugar or honey for winter stores, pack the bees unusually well and take the chance on allowing them to go into winter quarters with even as little as 10 pounds; for, since well-packed colonies use only from one to two pounds per month during the winter, they will likely be safe for several months, and in all probability sugar will be available

before spring. South of the Mason and Dixon line and the Ohio River, ten pounds will carry colonies thru until March 1, when they may be fed a good sugar syrup. North of that line, feeding should be delayed until three or four weeks later unless the bees are in a starving condition.

For this early spring feeding we recommend an abundance of feed, quite regardless of the price of sugar at the time. If the weather be cold, the syrup should be fed hot, and should be made of 2 to 2½ parts of sugar to one of water. The granulation of the syrup will be prevented if one ounce of tartaric acid is added to each 40 or 60 pounds of sugar while the syrup is being heated, and the syrup then kept at a boiling temperature for 15 minutes. The syrup should be given in friction-top pails inverted over the cluster and warmly covered. It is very important that the packing be left on after the feeding, for at that time it is certainly too early to unpack.

During the fall and winter, and until the colonies have enough stores to help them thru to the next honey-flow, the beekeeper should leave no stone unturned to buy sugar at every opportunity, no matter how small the quantity nor how great the price, for the new supply that will likely be available the first of the year may not be very abundant, on account of the difficulties of distribution. If the government does not restrict the price, sugar may be high, but let this deter no one from feeding all the stores required, since prospects for the beekeeper were never more promising than now.

Gleanings goes to press early this month in order to get this vitally important news to beekeepers as soon as possible. It is our hope that they will take action at once upon receipt of this information.



The Size of Entrances.

IT IS GETTING to be more and more the practice on the part of beekeepers north, south, east, and west, where outdoor wintering is in vogue, to contract the entrances of all colonies, whether in single-walled or double-walled hives or single-walled hives in packing-cases. The custom is universal in California, where the bees can fly almost every day. In the cold States of the northern part of the country it was formerly the practice to leave the entrance full width, or contract it down to 8 inches; but experience shows that the size of the entrance should be in proportion to the size of the colony and the amount of packing used. A colony without bottom packing will need a wider entrance than one that is protected on the bottom as well as on the sides,

tops, and ends. Some are using one, two, and 3 half-inch or ¾-holes. Dr. Phillips recommends a one-half-inch hole if the colonies are in quadruple cases and with not less than four inches of packing on the bottom during the coldest part of the winter. The reason why colonies so packed do not need a larger entrance is because the packing all around prevents the bees dying too fast, thus clogging the entrance. Moreover, well-packed colonies can carry out the dead bees as fast as they accumulate.

A large number of double-walled hives on the market have no provision for bottom packing. This can be very easily arranged by putting such hives up on stands, filled with dry leaves well packed. Leaves are better than shavings or sawdust, because they do not as readily take up moisture.

Large entrances are apt to result in weak or dead colonies in the spring. There is not much use in having packing or double-walled hives where a large entrance is used. The winter entrance should not be wider than 2 inches by ¾; and it may be smaller if bottom packing is used, and the entrance contracted to ¾ x ¾.

There is just as much sense and reason in having the entrance wide open the same as in summer as it would be for us to leave the main doorway of our homes wide open and then expect to warm the house with the ordinary stove.

It should not be forgotten that a colony of bees is a sort of radiator. When the opening to their homes is so large that cold drafts can blow in and chill the inside of the hive it almost entirely neutralizes the effect of packing.



WE REGRET to call attention to the fact that Stray Straws, that have graced our



**Dr. Miller
Much Better.**

pages for nearly 30 years without a miss, will be conspicuous by their

absence in this issue. Dr. Miller, who is now in his 89th year, has been quite ill, but we are very glad to say is now improving. Dr. Miller is one of the best-known and most-loved beekeepers in the whole world, and we well know that his thousands of friends will immediately wish to write to him; but we respectfully suggest that he is overburdened now with correspondence which he cannot answer.

We have just received the following letter from Mrs. Miller:

"Our hearts and hands have been very full these last few weeks. After I wrote Gleanings that Dr. Miller could not send Straws he was much worse for about a week, and I could think of nothing else. The trouble is with his heart. The doctor ordered absolute quiet. He is much better now; but the doctor says he must remain in bed for some weeks to rest his heart. He reads a great deal; does not suffer any pain, and is very cheerful and happy."

IF — what a great, big, little word, so full of contradictions, possibilities, and impossibilities! There are two kinds of “ifs”—one that leads on to success, and the other that courts failure. But the one that I have in mind is a veritable will-o'-the-wisp—so fine, so beautiful, so promising, so full of a glorious future that knows no failure. There are a lot of good “ifs” and bad “ifs” in beekeeping, but none of them more alluring and I may say illusive, than migrating from the South to the North. It is an ever recurring daydream of some professional beekeepers, especially those who have bumped up against the honey failures and winter losses of the cold, cold North.

Let's, for the fun of the thing, consider some of the possibilities of the migratory “ifs” from the North to the South—possibilities, mind you, because some of them do not materialize. Bees working the year round; the elimination of dead capital that lies idle six months in the cellar or winter packing-cases; three and four honey crops a year; winter and spring losses eliminated; no spring dwindling; no expense for winter cases and cellars; never a cent for sugar for bees; winter stores of honey all safe; no chilled brood; always summer; birds singing; the air ever laden with the perfume of blossoms; always living in the glorious outdoors for the beekeeper as well as the bees; fishing and boating galore; health every hour and blood tingling at every pore; last,



Fig. 2.—The Summerfield bees on the Bay at Toledo, Ohio.

but by no means least, barrels and barrels of—what shall I say? Health. Sure. Honey? Perhaps. Get rich quick? Yes, perhaps.

“Ah!” you say, “you have gone clear daffy, soared up into the seventh heaven.” I guess so. Say, dear reader, speaking seriously, I should like to dwell in the seventh heaven, even if it be only in a daydream, once in a while.

I will admit that I have for the time being painted a picture of migratory beekeeping that is, probably, a little too rosy. It

OHIO TO FLORIDA AND BACK

Possibilities and Impossibilities of Migratory Beekeeping. One Big Beekeeper's Experience

By E. R. Root

barrels of money; but every one of them has secured barrels of fun, barrels of health, and barrels of experience. There is something besides money or honey that helps to make up this world's goods.

The A. I. Root Company has tried out migratory beekeeping from Ohio to Florida, and the first year we had success. Bees se-

is, perhaps, not too much to say that there are some beekeepers in the country who have been partially successful. None of them, so far as I know, have made

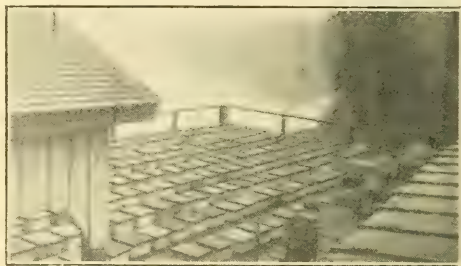


Fig. 1.—Another view of apiary shown in Fig. 2.

cured a good crop of honey in the Southland, and those very same bees and their increase secured a good crop of honey in and about Medina. If every year had been as successful as the first, we should have come pretty near making barrels of money. The next year we just about broke even, hardly that. The next year we were on the wrong side of the ledger, and the next year worse yet. Taking the whole four years of moving bees back and forth from Ohio to Florida, about all we got was barrels of experience, of the kind that Josh Billings tells about, where he said, “Experience is a good skule, but the tuishun comes pritty hi.”

In order to make migratory beekeeping a success, one must do the bigger part of the work himself. A hired man can not have the interest that one has in his own business, and he is, therefore, not watching for leaks as is the one who owns the bees and has everything to lose and everything to gain.

There are several men who have partially succeeded, if not entirely so, in moving bees from the North to the Southland, and then back again. They have actually overcome the problem of winter losses and spring dwindling, converted the winter food into bees in the Southland, caught a crop of honey, and then, when the season was over in the South, moved the bees in car lots to the North, caught another crop of honey—in short, succeeded in making it a business venture worth while. But it ought to be made very clear that the average beeman, I don't care whether he is a professional or

not, will not make a great deal of money at long-range migratory beekeeping; but he will get health and strength, also a good increase in bees—and sometimes a good increase means a great deal when a crop of honey is in sight in the North. Short-range migratory beekeeping generally pays well.

Summerfield's Migratory Experience.

One of the most extensive beekeepers from Ohio to Florida and back is F. W. Summerfield, 2465 Broadway, Toledo, O. In the spring of 1914, in one of my Florida trips, I happened to meet him about 20 miles north of Apalachicola on the Apalachicola River. At that time he was getting ready to harvest his crop of tupelo honey. He had come from Ohio in a forty-foot gasoline cruiser, which he had been using around Toledo. This was put upon a large flat car, along with another car of bees. He and his family lived in the cruiser, going overland by freight to Bainbridge, Ga., where they took to the water, traveling the rest of the distance on the river until they reached a point about 30 miles north of Apalachicola.

Mr. Summerfield is a retired business man. His health began to fail him; and so he decided to move his family and his bees south, spend the winter and come north with the increase of bees and a crop of honey.

His different years of experience ran about as follows: In 1913, from the 190 colonies that he took to Florida he took 22 barrels of honey, left the bees in care of his man, increased the 190 to 300 colonies, which the next year gave him 68 barrels of honey. So far, so good. Figuring 300 pounds to the barrel, he took in all 27,000 pounds of honey, and made an increase of 110 colonies—not bad for practically within the confines of one year. But in moving the bees back to Ohio he did not get any honey. Otherwise his venture was successful.

The next year, 1915, he moved his bees

South, secured only 15 barrels of honey—not enough to pay freight on the bees down; moved them back to Ohio and got no crop.

Next year he went back, secured 30 barrels of honey, increased to 450 colonies, and left 150 in Florida. When he went back in 1916 he found the 150 in a starving condition; but he built them up to 340, produced 90 barrels of honey, 600 young queens, and 600 three-pound packages of bees, which he sold in the North. The rest of the 180 colonies he sent to Ohio, got an increase of a hundred, and also a fair crop.

Conditions Under Which Migration Pays.

While, perhaps, Mr. Summerfield has not made a great deal of money, he has not lost any—that's sure. He enjoys the work, has excellent health, and a lot of fun. One has to take into consideration that there are large expenses in moving bees from Ohio to Florida and back. Those expenses can hardly be much less than about \$2.00 per colony each way when you figure freight, loss of bees and brood (as some bees die en route), railroad fare of man going with the bees, cartage or drayage, and carpenter work and lumber to fasten the hives in the car properly. Ordinarily one car can accommodate from 300 to 350 colonies; the larger the number, the less freight charge per colony. These expenses simply mean that to make this migratory beekeeping pay, one must secure enough honey to pay for actual time spent on the bees covering an entire year.

In California migratory beekeeping for short distances has proved to be profitable. Even for longer distances, where bees have been moved from Idaho to California and back, some have made good. One man took \$50,000.00 worth of honey within the year. But where there are cases like this there are dozens where much smaller returns have been secured—yes, cases of severe losses. I shall tell of these later.



Fig. 3.—The Summerfield bees after they are moved to Florida.

A RECENT inquirer in one of the bee journals asked how far north bees could be kept, and the answer was given, that as far north as men live bees are kept. Just how far this is literally true, I cannot say; but I hardly think that anywhere else do they have a climate quite as severe as that of Manitoba, and the fact that beekeeping is getting to be quite a considerable industry here speaks

MANITOBA MANAGEMENT

*Our Location Because of Difference
in Weather Conditions and Crops
Demands Modification of Methods*

By H. W. Sanders

and has a gap in the middle. Our bees often do not get carried out of the cellar until mid-April, sometimes not till May; and we, therefore, have less time to

build up in the spring before the clover begins to bloom. We have a great abundance of natural pollen from poplar and willows, and a little nectar from the latter and from wild-fruit bloom. Cultivated fruit has not been successfully acclimated except in one or two favored localities. We have an abundance of dandelion in May, and soon after the bees are out of the cellar they begin to build up with great rapidity and in favorable seasons sometimes swarm early in June. Clover opens about the third week in June, but so far it has proved a most uncertain crop. With an abundance of bloom the bees often get nothing and are inclined to rob. Brood-laying is curtailed, and unless feeding is resorted to they will not build up as they should for the later and more important flows.

Our real honey season comes in July, and from about the 10th of this month until the frosts come in late August or early September, there is practically an unbroken flow from wild mint, wolfberry, Canada and other thistles, goldenrod, and aster. The honey from the mints when first taken has



Ten-frame Langstroth (3) beside an eight-frame Jumbo hive (2). The Jumbo was made by fixing a shallow super to a standard eight-frame body.

well both for the wonderful adaptability of the honeybee and for the perfection of modern beekeeping methods and appliances. The provincial Government of Manitoba has announced that the 1919 honey crop will exceed one million pounds, and the lively demand for swarms and colonies at high prices is an indication of how far and how fast is travelling that interest in bees that is only gratified by the purchase of stock.

Ordinary Methods Need Modification.

Most of our bee literature has been obtained from the writers in the Northern States who have made such wonderful advances in the art of honey production, and have so unselfishly given them to the world; and while some few of our beekeepers learned their methods in older beekeeping countries such as Ontario, or England, a good many have started right out with modern ideas and modern equipment. We have found, however, that our shorter season has necessitated quite a little modification of the methods perfected by Doolittle, Dr. Miller, A. I. Root, and other authorities; and the account of the methods given by Bro. Ambrose of the monastery at St. Norbert, in a recent number of Gleanings, really needs an explanation to harmonize it with the proved and successful practices of the great beemen mentioned.

Your season begins sooner, lasts longer,



The extractor is screwed to a heavy platform, the top of which is hinged so that after each extracting it can be tilted forward, as shown, to drain it.

the characteristic smell and flavor of mint, but soon loses this on being kept.

Alexander's Methods Applicable Here.

The conditions outlined above, in practical honey production, make the methods of the late E. W. Alexander of especial interest to beekeepers in this locality, for his famous buckwheat honey flows came at about the same time of year as our heavy flows, and his system apparently relies on this buckwheat honey as the "bread and butter" of his business. Mr. Mendleson of California is reported as having said that in any loca-

tion the essential thing needed to secure a crop was to have the colonies ready when the crop opened, not when it closed, and tho this sounds obvious there is much wisdom in it. Let us apply it to Alexander's methods and to our conditions.

Whereas for a clover honey flow the main essential is to hold the colony together for the short time till the clover begins to yield, with a late flow there is plenty of time for the two halves of the original colony to grow to full strength in readiness for the best results in the supers. Therefore, the "Alexander plan" of increase will give maximum yields, where for a clover flow the two halves would merely build up on the honey flow and come to strength just as it closed. Furthermore, in the case of a clover flow, followed by a gap or dearth, emerging brood may become consumers instead of producers; and a week or two of queenlessness (to control swarming) may actually add to the ultimate honey crop, where in a locality with a late flow we need every egg that can be laid, for the early brood will constitute the gatherers of our crop.

We plan, therefore, to start the bees breeding as early as possible, to make early increase on the Alexander plan, and if necessary to feed to stimulate continuous brood-raising. By this means the "increase" themselves make a substantial contribution to the crop before the season closes.

Our Honey Allowed to Granulate.

Our honey, except on the rare occasions when we get a clover flow, is thick and rich, of amber color and pronounced flavor, and finds a very ready sale in our immediate neighborhood. We plan to allow it to granulate before sale if possible, partly to convince incredulous people that the granulation is not a sign of adulteration, and partly to stimulate the demand for granulated honey. It is well known that all the large botlers are obliged to heat their honey to satis-

fy the demands of the retailers for liquid honey, and consequently those who acquire a taste for granulated honey are obliged to rely on the local producer and return again and again. An exception to the above is, of course, furnished by Root's "Honeyspred," which is excellent, but which suffers from the fact that people are slow to find out that it really is nothing more than pure granulated honey.

Hives Used in Manitoba.

Hive sizes are of course a well-worn topic, and much depends upon the purpose for which the hive is used. For extracted honey, the ten-frame Langstroth is perhaps the most popular; but some use the Jumbo or the Dadant, while one very successful winterer of bees in the country uses the old Jones hive—a square hive of large capacity—which he brought up from Ontario some years ago. The photo shows a 10-frame Langstroth beside an 8-frame Jumbo. The latter was made by fixing a shallow super to a standard 8-frame body and then using Jumbo frames. The 8-frame hive always gave us such good results in wintering that we thought this experiment might show the same results, and by uniting the depth of a Jumbo frame with the compactness of the 8-frame hive, enough honey might be always present to act as a "balance wheel" to ensure steady breeding in spring.

Device for Draining Extractor.

The picture of the interior of the honey-house shows one feature that might be of general interest. The extractor is screwed to a heavy platform the top of which is hinged so that after each extracting it can be tilted forward, as shown, to drain it. Without this arrangement there used to be some honey that would granulate in the extractor after each extracting, and have to be cleared out at the end of the season.

Sturgeon Creek, Man.



OUTSIDE of a few small localities in the United States, honey in carload lots from ordinary garden plants would seem almost like a myth; and I confess when I heard about the large quantities of celery and parsnip honey that were secured in the Sacramento Valley I myself thought there must be some mistake, and that the bees were getting honey from something else.

Truck Gardens Along the Sacramento.

Just before leaving California, toward the latter part of June, I had the pleasure of taking a trip with H. Gear of Walnut Grove,

ALONG the SACRAMENTO RIVER

Honey from Parsnips and Celery by the Carload in California. How Foul Brood Has Been Eliminated

By E. R. Root

that runs from San Francisco to Sacramento. For miles and miles up and down the river we saw some of the finest garden country in the world. This old river, like many other streams running thru soft soil, has a fashion of overflowing its banks and making new channels; so we see on each side high embankments, the purpose of which is to protect the truck farming during high water in the spring. There are all kinds

Cal., who has some 500 colonies scattered in lots of 150 in a place. Together we traveled thru a portion of the Sacramento River Valley, or that part of it

of garden truck grown there, and many of the plants are raised for seed—especially celery and parsnip; and right here is where my story really begins. Celery and parsnip honey is stored in skyscraper hives. Here is a photo showing one of the skyscrapers in Mr. Gear's yard near Walnut Grove, and Mr. Gear standing alongside. His apiaries are located along the river in peach and prune groves. While the bees get a great deal of benefit from the early fruit bloom, it is equally true that the fruit-growers themselves are benefited ten times as much in more and better fruit. But it is not this fruit bloom that yields the main crop. As is usually the case, the fruit bloom gives the bees a good boost for the heavier flows that come later—in this case from the garden plants when they are allowed to go to seed.

Honey-producing Plants of the Garden-truck Lands.

At the time of my visit at Mr. Gear's I saw many of the hives stacked five or six high and on opening them we found them completely jammed full of honey; in fact the bees should have had room long before but Mr. Gear had had difficulty in getting help, and the bees had got ahead of him. The colonies were so crowded that the space between the cover and the tops of the

frames were built full of burr-combs as shown in Fig. 2. All this honey was from celery and parsnip—at least that is what Mr. Gear told me. While I did not tell him so, I wanted the proof. We went down the river



Fig. 1.—A view looking down the Sacramento River. The picture was taken from the top of one of the levees that are made to prevent the river from overflowing its banks in the spring and ruining the truck gardens. During the summer season the gardens are irrigated with water from the river. In some cases it flows by gravity on the land, and in other cases it is pumped where the land is above the level of the water in the river.

a little way to see some of the big celery and parsnip fields that were in bloom and going to seed. On our arrival at the field it was very easy to be seen that there was honey in the blossoms. In the sunlight the little drops of nectar gleamed like myriads of little diamonds—no question about it. The nectar was there in great abundance, both on the celery and parsnip blossoms, and the bees, fully conscious of the fact, were right there on the job. I tasted some of the raw nectar from the celery. Sure enough, there was quite a strong suggestion of celery flavor.

There are other plants in that garden-truck land that yield honey likewise; but the celery and parsnip were the most important. There is not a large amount of alfalfa, and what there was seemed to be scattered along the levees.

Bee Ranges Protected.

There are but comparatively few beekeepers in that garden-truck country, and the few in that territory are pretty evenly divided. There is not a chance for another man to get in edgewise; and most of the California beekeepers today are wise enough not to encroach on the territory of another. Mr. Gear has plenty of neighbors, but they are all at respectable distances, and each enjoys his own field.

The Quality of Garden-truck Honey.

Garden-truck honey is not of the best—it is a mixture, a little of everything, but



Fig. 2.—The top of one of Mr. Gear's hives, showing that the bees are jamming in the celery and parsnip honey or they would not have built so many burr-combs. Owing to the difficulty of getting help Mr. Gear acknowledged that the bees had got ahead of him, and that he must immediately put on more supers.

mostly celery and parsnip. The last named does not furnish as good honey as the celery.

Troublesome Stages of European and American Foul Brood.

Mr. Gear has had his share of foul-brood troubles; and he is one of the few men in California who know both European and American. He had both diseases practically under control when I was there.

At another time I hope to show photos of European foul brood from one of his apiaries in an advanced stage which he was holding for experimental purposes, and also a sample of American from the same yard. I was confused as to which was which. There were the characteristic scales which were alike in both samples. There were the typical perforations, both alike. They were alike in so many other respects that it is not to be wondered at that many of the beekeepers of California have been confused. I showed photos of these at a number of field meets, and asked the beekeepers to tell me which was which, and in most cases they got them wrong; and I will tell you why at another time.

Rendering Foul-brood Combs.

Mr. Gear's experience with foul brood necessarily forced him into the wax-rendering business. Fig. 4 shows his handy outdoor wax-rendering outfit with which he has melted up thousands of combs and cleaned up all his apiaries. At the time of my visit he had cleaned up everything except the two hives before mentioned, and, of course, was having but very little use at that time for the rendering outfit.

I find that more and more beekeepers use these outdoor rendering outfits. During quite cool days when the bees do not fly much and the beeman cannot work with his bees the combs are melted up, letting all the unpleasant odors escape into the open air.

Disinfecting Hive-bodies.

Mr. Gear showed me a little trick of the trade in disinfecting—or, rather, burning out hive bodies. He makes a wholesale job of it. He takes an ordinary fruit can holding about a quart. He punches a hole near the bottom in one side with an eight-penny wire nail. He fills this can with kerosene and plugs the afore-said hole for the time being. He now piles up four or five hives on a hive-bottom, or

as high as he can reach conveniently; then with the can of kerosene he allows a fine stream of the fluid, after removing the plug, to flow out against the insides of the stacked-up hives until the inside surfaces of the hives are pretty well covered with the kerosene. The little tin can is much more effective than one would imagine. By holding it near the top, and whirling it around, a fine stream of kerosene will be thrown all



Fig. 3.—Mr. Gear, Walnut Grove, and one of his stacked-up hives filled with parsnip and celery honey. At the time of the editor's visit, Mr. Gear had many such hives in his apiary, and all of them showed by the burr-combs that the bees were storing honey.

over the inside of the stacked-up hives. He now touches a match and allows the flame to burn for a few seconds, when he dashes in a little water and claps on the cover. The whole operation can be performed in much less time than it takes to tell it.



Fig. 4.—Mr. Gear's outdoor wax-rendering outfit with which he has melted up thousands of combs, and cleaned up all of his apiaries. There is nothing in the world that will scent up a house like rendering foul-broody combs inside. Mr. Gear has not only an eye to business, but he has considered the convenience and comfort of his best queen—the one who runs the house and cooks his meals.



More beekeepers registered at the Madison Beekeepers' Chautauqua than at any other short course yet held.



ANNE LESTER AND DADDY LOWE, BEEKEEPERS



By Grace Allen—Chapter X

A CHEERFUL fire was blazing in the Lowe livingroom and in its glow sat the two old people and Jack and Anne. The day was chill and gray, with rain against the windows. Two small books lay on the table by Mr. Lowe. "Think of having both a Roman Emperor and a Roman slave with us, right here by our very fire-side," Anne had said. For in that quiet, rain-bordered, fire-lighted hour Daddy Lowe had been reading at random favorite marked passages from Marcus Aurelius and Epictetus; while Jack, lying on the couch by the window, had watched the light come and go across the girl's sensitive face as she listened.

"If, careless of by-gains, you keep your god within pure and erect," he had begun from those deathless diarylike pages written centuries ago in the privacy of the imperial tent of the old Roman Emperor, fighting his last battles there along the Danube where he held back the invading barbarians from the north; and again, "This is the way of salvation—with your whole heart to do what is just and say what is true; and one thing more, to find the joy of life in heaping good on good so close that not a chink is left between"; and still again, "Whatever anyone does or says, my duty is to be good; just as gold or emerald or purple forever say, Whatever anyone else does or says, my duty is to be emerald and keep my proper hue."

And from Epictetus, the slave, "I am free, I am a friend of God. Whithersoever I go, there shall I still find Sun, Moon, and Stars; there shall I find dreams, and omens, and converse with the Gods." And so on, to the ringing lines beginning, "What would you be found doing when overtaken by Death?"

As usual a deep full silence closed over the last words. It was Anne who spoke first, scarcely interrupting the stillness to do so. "Thank you, Daddy Lowe," she said gently, "and you," touching the Marcus Aurelius as she passed; "and you," touching the Epictetus. "Now I'm going out to walk in the rain—and let it soak in!"

In a few minutes she reappeared, rubbered and raincoated and ready. Outside the door she found Jack waiting, in boots and mackintosh. She shook her head at him. "Ought you?" she asked, with the solicitude they all tried to avoid, he hated it so. "Of course I ought. You might get drowned or blown away."

"Mrs. Lowe!" she called. "Jack's mutinous."

"Too late," he retorted cheerfully. "Dad's already convinced her. Anyhow, haven't I been walking every day for two weeks? And is the weather to stop me?"

"Apparently not," said Anne.

As they splashed down the steps, "Let's

go around by the bees first," Anne suggested. The water was dripping off the metal covers; "but they're dry and comfy inside," she assured the unworried Jack. "See how the hives all tilt towards the front. Any inside moisture can run out and no outside moisture can run in."

"If the outside moisture can't run in, how can there be any moisture inside to run out?" Jack challenged her.

"Well, you see the bees are in there eating honey, for one thing—and honey's got water in it. It's a carbohydrate, and you know better than I what that is—cause you've known longer. Want to hear—just as if you didn't know? Well, it's something made of carbon, hydrogen, and oxygen. And after it's eaten, it ends up as carbon dioxide and water."

"Wise young woman," murmured Jack. "So there's bound to be moisture in the hive. Sometimes there's so much, it condenses and drops down on the floor—and even runs out the entrance. And the combs, especially the outside ones, get all moldy. I remember last winter Daddy Lowe and I poked little twigs in a lot of entrances and some of them came out all wet. But they were hives that had sealed covers. Daddy Lowe doesn't have any trouble with damp hives, because he uses absorbent cushions."

"Uses what?"

"Overhead packing, with just burlap between it and the bees. The water vapor evidently rises, and passes thru the burlap into the packing. Anyhow it disappears. Some beekeepers think overhead packing and upward ventilation are scandalous; but your father's had such good success with it, of course he keeps right on using it. So naturally I'm a devotee of that system, too."

"Honestly," Jack exclaimed boyishly, "isn't Dad great?"

"Honestly," Anne smiled back, "he is."

"But what I don't understand," she said as they started for the road, "is why you, the son of your father, don't know all there is to know about bees."

"Perhaps I do, and am modest about it."

"You didn't seem to know much just now."

"Well, for a fact, I never had anything to do with the bees in the fall—always going to school, you see—grades, county high, college. But I helped Dad a lot in the summer. Don't I know—let's see, what do I know? Order, Hymenoptera—genus, Apis—species, mellifica. How's that?"

"Whew!" exclaimed Anne. "But I meant practical things."

Jack meditated. "See that your colonies are strong, eternally. Keep Italians. Then you surely won't have moths, probably won't have disease, and almost certainly will have honey. Use full sheets of founda-

tion, wire 'em in, and you'll get good worker comb. Don't allow any drones at all. Then you'll have too many anyhow. Never let the hives get crowded. Always keep ahead of your bees. Give 'em what they want before they want it. Doesn't that sound like Dad?"

Anne nodded merrily. "Do go on! It sounds like a beekeeper's book of proverbs."

"There's lots more—Dad drilled it in pretty well. Never leave honey exposed or you'll start robbing. Work quietly. Don't use too much smoke. But use enough. Don't let your bees swarm. At least, not often! Now don't ask me how to prevent it, Miss Anne. You can't put swarm prevention into a proverb. You know that. Still, how's this? Plenty of room for both brood and honey, a little shade, and a lot of ventilation. That'll all help. And young queens aren't so apt to swarm as old ones. But, goodness, some of them will swarm regardless. I've hived a lot of them in my life. Clip your queens and they can't go away. Like my summary proverbs?"

"They're dandies."

"Then you give me some wintery ones."

"Young queens again, then. Plenty of young bees, emphasis on the young. Plenty of sealed stores, not less than thirty pounds. Windbreaks. The rest of it has scarcely passed into a proverb yet. Plenty of packing, if you pack, and small entrances. If you cellar, a dry, well-ventilated cellar, averaging about 45 degrees. And Jack, your father says, above all, winter or summer, **you must love the work.**"

On down the rainy road they went, straight into the heart of November. And all around them was life and inspiration and beauty, where so many older, wearier folk, huddled about small fires, saw only fog and drizzle and chill. It is the way of youth, this seeing beauty at the heart of all things. And some there be, happily, who stay always young.

For a long time they walked in silence, with only the occasional comments that grew out of the walk itself; "Some tree," from Jack, as they passed the bare oak at the corner; "How heavy and drenched the leaves lie under," from Anne, or "Listen!" when a birdnote floated across the gray; and other such little obvious things, that just said themselves and wisely rested there.

"There's one nice thing about you," Jack remarked once.

"Thanks," said Anne. "My raincoat?"

"Also," said Jack, "you don't think you have to talk every minute."

"I like conversation," she answered. "But I do like to keep still, too, and just listen. Something comes closer when you're still. God, maybe."

"There's one nice thing about you, too," she added, a few minutes later. "You don't **have** to be talked to every minute. It does make a difference," she explained. "Some men sort of rattle, if you don't talk."

Jack shook his head in mock distress.

"Empty wagons on a rough road," he mourned. "And some girls, by the way, rattle when they do talk," he added.

They turned by the old sycamore, and followed the creek road for some time. "If I weren't here," there was the slightest tinge of self-scorn in Jack's voice as they paused where stepping-stones led across, "you'd go on over and climb the old hill."

"Perhaps," she admitted. "But it's a prouder thing to stand here and remember just why you can't climb hills right now."

The honest ring in her voice shamed the dissatisfaction out of his. "Please understand I don't mind what I got," he urged anxiously.

"Of course I understand. You're in a hurry to go back. But Jack, you know even strong young hearts like yours don't get over such a bad case of gas in a month or two."

Midway her words Jack turned to her swiftly. How lovely she was, vivid and windblown and earnest. "And there are some things they never get over, Miss Anne," he said, his voice suddenly low and tense, "and never want to."

"Does he mean Katherine?" Anne thought. For sometimes even women force themselves to think with their heads only, instead of with their hearts—the natural way. "Anyhow," she decided quickly, heart and head both fluttered a bit by the strange new tone and the strange new look, so directly into her eyes, "anyhow, **this** is no time to keep still. But—I can't think of a thing to talk about. I'll have to try the weather."

So presently the girlish voice said, "It seems queer to me that some people don't like rain. I love it."

No reply.

"I believe I'd want it to rain even in the Forest of Arden."

Still no reply.

"I don't mean just to make things grow," she kept on, sure she was talking against something inevitable, "but just for the rain's sake."

And still no reply.

Whereupon Anne sighed, a solemnly twinkly sort of sigh. "Evidently the rain won't do," she remarked impersonally to the scenery, "I'll have to fall back on bees, or the war, or books."

Then Jack turned to her again. "Anne!"

One word—and it was as tho she had never heard her name before.

"Anne, I don't know a thing about rain! Or bees or books or anything but you. There isn't anything or anybody in the whole wide world—but Anne!"

And the look in his face was such as no one had ever seen there before, so flaming it was, so swept with emotion, so tender and holy and reverent.

"I wish to God there wasn't any war!" The words broke from the inmost depths of the brave and boyish soul of him. "But when it's over—dear—do you think—? —Anne!"—Concluded in December issue.



REFLECTIONS OF A BACKLOTTER

Do You Know Little and Talk Much? If So You Can Be President

The remarks that I made at the last meeting were not at all intended as disrespectful towards the big lights in the bee business, but it seems that since I made them I have become a more important personage in the fraternity. I have been elected president of the local chapter—and this causes me to comment on the art of being noisy.

Early in life my father impressed on me the importance of finding out a reason for everything that happened. That was the thing that got me into all this trouble with the presidency, yet I cannot break the habit.

I wonder why I was made president. I'm not much of a beekeeper, as I have before mentioned, but yesterday I bought 13 colonies from a fellow who is moving to Wyoming, making it 32 to date. Then I've ordered 50 two-pound packages from the South to be delivered in May, and that will put me in with the fellows who have taken the third degree. If I'm to be president I must first, or later, be a beeman.

But I'm worried about the presidency. Or rather I was. I've been looking into the matter a bit, and I may as well let you have the results of my investigation. Maybe some of you fellows will want to be president or something in a beekeepers' association some time and I may as well tell you how, for I don't expect to keep it always.

I've written a lot of letters about this and have data about a lot of different organizations. I'm intending to be mighty careful not to mention any names, and I guess I can get away with that, and not tell where any of these associations are. But if you guess them that is no fault of mine. This business of being elected to office in a bee club is about as interesting as the bee business, and, as we all know, that is the most interesting thing there is.

I always supposed that the president of a bee outfit must have about 10,000 colonies or must in some way have distinguished himself as an expert in beekeeping. I have changed my mind. He must have distinguished himself, all right, but not always in something that has anything at all to do with beekeeping. I'll tell you about a few, and then you'll see that it is not so hard, after all, to get such a position. It's all in knowing how.

The first case that came to my attention was that of the secretary of the _____ Association. He is a dandy example of what I mean. He went to the meeting of the association about five years ago. Now he actually has five colonies, so those who

say that he knows nothing about the bee business are liars. But he is the champion talker of the State, and every time anybody got up to say anything on any phase of beekeeping, this fellow was on his feet right away to comment. He has the happy faculty of making every fellow think that the views he has expressed are just the last word on the subject. So he made friends and they made him secretary. I forgot to say that he has a cousin who is in the printing business, and he gets the association business, but that isn't graft unless you actually get the business yourself. Anybody who would think of competing for that job would be a fool unless he can talk more than the present incumbent. You know what the farmer said about the camel.

The next case that I ran into in my hunt was the president of the _____ Association. He was a state officer of some sort—just what I have not been able to find out; but it had something to do with bugs, so when the beekeepers decided to have an organization he went. Being a sort of political highbinder and hoping some day to get a political job in the agricultural department of the State, he talked a lot. It was all about the beauties of nature and that sort of rot. Then when they really got down to business in organizing he told them about the advantages of everybody pulling together and how fine it was for brethren to dwell together in Christian brotherhood. Of course, that didn't have anything to do with a bee association, and he didn't know just what a bee association was supposed to have for its main job; but they made him president, and he has held it for 15 years. Yes, he did just what I am doing, only not so much so. He did buy a few colonies and read a few articles on beekeeping. Really for a time he became quite an authority and wrote a lot for the bee journals, but that is dangerous—or at least more dangerous than making a noise at a bee meeting. He soon stepped on something by giving a lot of advice that everybody knew was bunk, and so the editors were not so anxious to hear from him as they were at first. The moral of this is: make all the noise you want at a bee meeting but be more careful what they get on you in black and white. The last time I told you about my bee investigations I said that anything goes in the journals. I'm taking that back now, with apologies, for I've found out that some things go at a bee meeting that the journals won't take. I therefore apologize to the journals. I guess you'll think I change my mind a lot about some of these things, but you must remember that I've been a beekeeper only a little while; in fact I've not yet served a full term as president.



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One of the most interesting cases that I dug up was that of the presidency of the Association. They had slipped up by putting a real beeman in for a year, and he worked up a whale of a meeting with all sorts of papers by beekeepers on beekeeping subjects. Something had to be done about that, for a lot of folks who wanted to talk didn't have a chance. Now the president was a good fellow, and they didn't want to hurt his feelings, but everybody felt that to break all the precedents of association work in that manner was a thing not to be tolerated again. Right at what you call the psychological moment in came the man who saved the day. It's funny how this psychological-moment stuff works. I guess it's something to do with the fact that angels watch the feeble-minded.

The fellow who turned the trick here is one of the leading stove manufacturers of the State. He's also quite a Baptist, a member of the state legislature, one of the big bugs in things generally. He had two colonies of bees on his big farm just outside the city, into which he sinks some of the stove money, and he had heard that there was to be a bee meet. I forgot to say that he is also a leading joiner in secret societies. Just as soon as he got fairly seated, the matter of buying supplies cheaper came up. Now that is no sort of a subject to take up at a meeting of beekeepers, for that means that somebody ought to talk about it who knows something about business; but the beekeeper who had slipped in as president didn't understand. This was a great opening for the stove man, and he was on his feet in a minute. Something ought to be done about this; the man who took care of his bees had complained that supplies cost too much. He told them all about the way business is conducted, how everybody ought to pull together and co-operate, and about the great success he had made of the stove business by being on the job. It took about an hour to tell this, but that was a short speech for one in training. The result obviously was that they made him president. At first some of the beemen thought he ought to be secretary, but that means too much work in sending out the notices of the annual meeting, so they decided not to give him the lower job but go the limit.

No, of course he didn't do anything about the association business during the year, but you can bet that all the papers of the State carried the joyful news about his election. When the next meeting came around he was in the middle of the campaign for state senator, so he sent the vice president to do the job, also one of his lieutenants to tell the beekeepers that they ought to stand behind the president in the election, and, amid applause, how much he had done for beekeeping in the State. I can't understand just why he was not re-elected, except that

there was a fellow there on the ground from the northern part of the State who is interested in selling real estate. He comes from a great bee country and he did sell a lot of land to the beekeepers. They made him president—not that he was in the same class as the senator, but he was on the ground and the senator was busy.

The best case that I'm going to tell you about I've saved for the last. I could go right on in this line for some time, but by this time you fellows ought to have a pretty good idea how to get an office. However, your education will not be complete until you hear about this one. It has to do with the biggest association in the country. It had been going along all right and had stuck pretty close to the bee business for several years, and some of the fellows thought that there ought to be a change. The secretary was a commercial beekeeper who had given a lot of his time to the association and had helped out a lot of the beekeepers who had been in trouble from various causes. Just in the nick of time the man who saved the day appeared. He had 15 colonies of bees, 14 (to be charitable) rotten with foul brood. He has a country store in a little town in the hills, and is the champion organizer of the world when it comes to getting up ideas that will not work.

He blew into the meeting at the moment of greatest dissatisfaction and when opportunity offered (which was mighty soon) he arose to comment on the downtroddenness of the beekeeper, the robbery of the honey-buyer, the rascality of the supply dealer, the ulterior motives of everybody that was not one of the big producers. The remedy was co-operation. I've often wondered about that word co-operation, and, even if I did get to be president of our club, I haven't found the magic of that word yet. You can get it off anywhere and get away with it. You really don't have to have a real use for it or to have a plan of co-operation that will work. All you have to do is to use the magic word and you have turned the trick.

Co-operation in this case meant, as nearly as anyone could find out, that the beekeepers were to organize with paid officers and by that means they were to put the honey-buyers, the supply dealers, and all other parasites of the bee business out of commission. It would take \$25,000 a year to get the right sort of man to do all that ought to be done, and the beekeepers were at once to take steps to perfect the organization. At once the regular program was dropped, and the meeting took up the matter of co-operation. Thomas Jeff—but I'll not give his name, quietly told some of the beekeepers that he was willing to make the big sacrifice and that if they would make him the general manager of the outfit he would be willing to take it for \$10,000 a year. Of course, they didn't have any money at all

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now and he would wait until they did get some before taking any salary. You know the result before I tell it to you. They made him secretary. Here was a man who did not want the presidency, for it was understood that the president was not to get a salary when the money for this scheme came rolling in. And so this obliging man was soon drawing a salary of \$10,000 a year?

No, you're quite mistaken, and it shows that you fellows still have a lot to learn about officers of associations. There wasn't anything at all done about it. After all that I've told you about associations you ought to know that it was all wind. He was re-elected the next year too, on more promises, but by the end of two years there was a bigger blower on deck and he went out.

Now I've told you the secret of success as an officer. If any of you would like to get such a position all you have to do is to follow what I have told you. As for me, I expect to get into the beekeeping game on a commercial scale, and that will disqualify me for office any longer than the present year. If I were eligible any longer I think that I would keep all this to myself, but you fellows can go to it now and I'll do all I can to help. I'm very much interested in associations, for it's a great game and I like to attend so that I can meet the big beemen of the State; but, of course, as long as the rules for election of officers are unchanged we don't get any good from the meetings themselves, so far as beekeeping is concerned.

Since you ask it, I suppose it ought to be possible to make the organizations worth while for real beekeepers, and when you think that there is any hope of a change I'll be glad to help you. But if you do change you'll spoil a fine and very human game. As I have told you success as an officer depends on lung power. I'd hate to try to change the rules alone.

Maryland.

Phil Franklin.

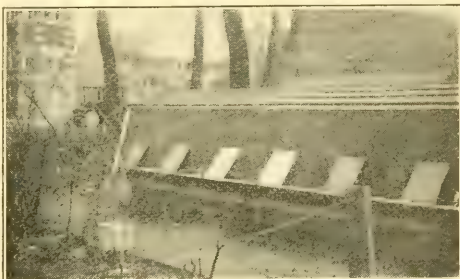


Apiary of S. J. Morrison, Chico, Calif. In the background is his screened 6 x 6-foot honey-house and in the foreground what he mentions as "some of Mel's friends with hides on stretchers." He says the skunks were caught in the act.

BETWEEN APARTMENT HOUSES

A Chicago Man Keeps His Colonies Where Population is Dense

A Chicago business man keeps a dozen colonies of bees between two big apartment buildings and just across the street from several more such buildings. He lives in one of the dwellings, and his bees are within 25 feet of his kitchen door and within 10 feet of the sidewalk, while there is no enclosing structure of any kind. This man is George Theodore Halla. He has been raising bees for three years, and says he has had no complaint from any source.



Mr. Halla's city honey-makers in their winter quarters.

The accompanying picture illustrates Mr. Halla's lay-out. The hives are covered in winter by an outer house. There are six hives on a bench, and the outside house is built to conform to the shape of the six hives. It is built in sections and screwed together in the fall and unscrewed in the spring. There is an opening in the outer house for each one of the hives inside, and over the opening is provided a slanting cover as shown. Mr. Halla believes that it is better to keep bees than to keep dogs and cats. The bees work on the vast area of flower beds in the residential district, on the bloom of thousands of acres of gardens, and on the clover-covered spoil banks of the Chicago drainage canal.

Chicago, Ill.

J. L. Graff.

BEEES IN BROOKLYN

Results Such as any Average Beginner Could Reasonably Expect

The bee tinder in me, set on fire by reading Maeterlinck's "The Life of the Bee," during the winter of 1916-'17, has grown to be a conflagration. We have always made a specialty of "bees," but up to May 1, 1917, it was "ba-bees." Since that time we have included "honeybees."

Early in the year I ordered a beginner's outfit which included a ten-frame colony of

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bees on Hoffman frames, and bought locally a colony of bees. My plan was to keep them from swarming if possible, and run them for comb honey during the clover season, and afterward to make increase.

I clipped the queens and handled the frames once a week to look for queen-cells. One colony started queen-cells early in May, in wet cold weather. Believing these to be supersedure cells I did not disturb them. When they were capped I removed one frame with two or three good cells and one frame of brood and honey into a new hive. The parent colony superseded their queen and stored about 25 pounds of surplus clover honey after drawing out the comb in nine shallow Hoffman frames. The two-frame nucleus, without any more help, raised what I believe to be the best queen in our yard, drew out the foundation in nine Hoffman brood-frames, and later went into winter quarters with more than enough stores.

My first colony was a story and a half high. About June 10, both brood-chamber and super being full of brood, I placed an excluder under the super and put the queen below. I left it in this position a week to make sure there were no eggs or brood under three days old in the super, then raised it, placing a super of 4 x 5 sections with full sheets of foundation between, at the same

time removing the excluder. The bees went to work in the sections very soon. When the brood had about half hatched out of the top super I shook a part of the bees out of it and removed it altogether, placing it on a bottom-board in a new location and introducing a queen which I received by mail. Thus nucleus built eight frames of comb and stored plenty for winter.

I also built up two other colonies by taking some brood from other hives and introducing a queen.

After taking our inventory and placing a value of \$12.00 per colony on my bees, together with the 90 pounds of honey, I found I broke about even. Our work and study among the bees increased the pleasure we always get out of our flower and vegetable garden two or three fold.

I was ready the next year with supplies nailed and painted, with a queen-rearing outfit of my own make, in order to experiment with this most interesting part of bee-keeping. I also made two observatory hives in order to carry on my studies.

I will eventually work into running some bees for extracted honey; but for the present I want comb honey for my neighbors and friends and for our own table.

Brooklyn, N. Y.

J. O. Stewart.



One of Mr. Stewart's "ba-bees," helping Daddy.

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Some winter in single-walled hives wrapped in paper. In the North, this is insufficient protection.

BEEKEEPING IN THE BALKANS

Methods Primitive; Homemade Extractor; One-pound Sheets of Foundation

Beekeeping in the Balkans is put on the same plane with horticulture and dairying. Bees are kept mostly on a large scale. The equipment is most primitive as in all Eastern countries. A few of the more progressive men adopted the Carniolan hive, Dant hive, and the Long Idea hive. I met the most progressive and enthusiastic beekeeper at Monastir. His name is Otseveh. He keeps 50 colonies of bees. The hives resemble our trunks even to the hinged cover and handles on the ends. The frames are jumbo size with a vengeance. He invented the wiring of frames independently of us. In Athens somehow he got hold of an old German machine for making foundation. He uses full sheets of foundation, each sheet weighing about a pound with four diagonal and four horizontal wires. He extracts the honey with a homemade two-frame extractor and uncaps his combs with a wire brush. The by-products he uses for making honey vinegar and mead. His crop last summer averaged 150 pounds per colony of the best-flavored honey I ever tasted, made from nectar of mountain flowers, sage and thyme. The Olympus mountains being in full sight, this honey may be classed with Virgil's Hymettus honey, or with the famous nectar and ambrosia which are supposed to have constituted the chief food of the old Greek gods.

The Balkan bees resemble the Carniolans, except that they are slightly smaller and a brighter grey. They are exceedingly gentle, very quiet on the comb altho they follow you with their eyes. They seem to be

little given to robbing. The queens are as prolific as the Carniolans and are the same color. They have a great strength of wing to judge from the fact that the Macedonian plains during the summer drouth were burnt and parched and devoid of all bee pasture, the nearest source of nectar being the surrounding mountain tops where frequent rains cause the mountain soil to bring forth the most wonderful carpet of flowers. My rough estimate of the distance from the apiary to the pasture in the mountains is about seven miles.

The ten hives and other equipment, which were sent to the American Red Cross to start an American apiary in the Balkans, arrived in Solonika in good shape, except five bodies with contents which disappeared on the way. The five remaining bodies I assembled with the help of Serbian soldiers, had them painted with the paint sent with them, which, by the way, was the only paint in the Balkans and easily worth \$100. I obtained some straw hives with good colonies of bees in June, transferred them to the new hives on full sheets of foundation, and they immediately went to work drawing out the foundation. By September 1 they had the brood-chamber full of honey, and I was sorry I had no supers to give them. It was too late in the season to give them extracting-supers. The Serbian Government and ministers, as well as the war officials, were very much interested in our system of beekeeping. Crown Prince Alexander himself wished he had a colony of bees like ours, and I gratified his wish. One colony I gave to Mr. Otseveh in Monastir, one I gave to the head of the Serbian Department of Agriculture, and two were left at our camp.

The Serbian people are exceedingly quick to respond to every modern improvement they see in machinery and agriculture. They will discard everything impracticable without remorse as soon as they find anything better, and there is no doubt in my mind that after they have seen the advantages of our American system of beekeeping as compared with theirs they will be quick to adopt it.

Francis Jager.

University Farm, St. Paul, Minn.



BRITISH COLUMBIA NOTES

Fine Honey-production Possibilities for the Man who Adapts Himself to New Conditions

Beekeeping has a brief history in this Canadian province. There was but little farming prior to 1860, and then for a period of years it was not of an extensive nature, cattle-ranching being most important. The province has grown a great deal in the past 25 years, and in fruit-growing there has been a veritable boom. Small fruits are also extensively cultivated. In the British Co-

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lumbia environment apicultural practices, successful elsewhere, must be modified and often radically altered. The beginners in the newly settled districts especially suffer from the dearth of beekeeping traditions. However, the honey industry gains ground, and nowhere are there more enthusiastic and progressive beekeepers than those in this province.

British Columbia is an immense territory, an empire which extends to the arctic circle on the north, and in the south has regions where there is practically no snow in winter. Much of the interior is semiarid to arid. On the Lower Mainland, which is the center of population, and north to Prince Rupert the average rainfall is above 55 inches per annum, and some localities get as much as 90 inches. That is some rainfall. It is an illustration of the variety in conditions under which beekeepers in this province operate. They believe the general welfare of the industry can be improved by organization.

Beekeepers have been getting good prices—many averaging 20 cents a pound or more for their entire extracted output. In recent years honey-producers have received prices comparing most favorably with those obtained in other parts of America. One reason is the isolated situation of the province and the distance that imported supplies must come. Another is the slim local industry which has utilized only a small portion of the available forage. White clover, fireweed, and alfalfa are important sources of nectar. British Columbia beekeepers are sideliners, altho some of them have incomes from their bees which would recompense well for their entire time.

James Reagh at Ladner in the fertile Fraser delta has an apiary of about 30 colonies beneath fruit trees in his village back yard. He is probably the most successful beekeeper in the Fraser Valley; but not the least of the fun for him must be the local distinction. Scores have failed with bees in the Ladner district because of problems created by breaks in the spring succession of nectar-bearing flowers. Reagh produces almost all the honey surplus in his region.

Mr. Reagh learned how to handle bees in Ontario; but he says he had, in many respects, to learn all over again when he came to Ladner, as local conditions were so different. He began his apiary with wild bees captured in the timber several miles from Ladner, which is on a delta plain. That was away back in the 90's. For several years he had but little surplus; but he plugged away, learning the "how" of it. He now has always a nice income from his bees.

The Lower Mainland has an early spring and a late fall. Ladner is on a delta plain; and after willow bloom in early March there are practically no flowers until clover in June. Elsewhere fruit blossoms come along to furnish nectar, but thruout the district

April is ordinarily the crucial month of the year, and it is not safe for a beekeeper to count his losses until this period is passed. Spring management is, therefore, of much importance. At Ladner, Reagh found two dangers created by the hazard of the flower succession, and he meets them at the same time. One is the storing of honeydew, imperiling winter health when there comes a dearth of nectar and pollen-bearing flowers after the summer honey flow. The other is the great danger of a cessation in brood-rearing after willow bloom, and in that lengthy period before clover when forage is scant or non-existent.

On the Lower Mainland there is the inevitable difference of opinion as to the best way to bring colonies thru these weeks. Stimulative feeding is followed by some. Others are just as positive that nothing but ample honey stores will accomplish the object. Mr. Reagh's practice for years has been to introduce sufficient honey in the fall to carry the bees thru to the clover-honey flow. He introduces the honey just before honeydew, filling a compartment with solid comb placed beneath a brood-chamber, from which all but the frames actually containing brood have been taken. When the brood hatches out, the frames are taken away. This strategy compels the bees to cluster on the solid comb; and as there is no room for storage they gather no honeydew.

W. H. Collins, a veteran beekeeper at Grand Forks in southern British Columbia, finds cellar wintering best. He has a gravelly soil, neither very damp nor very dry, with a temperature around 38 or 40 degrees. The hives are kept about a foot from the ground, and 18 inches apart. The cellar is kept dark, and as quiet as possible.

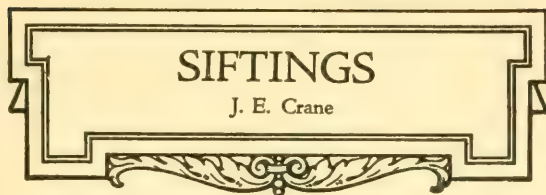
L. Harris of Vernon, our genial provincial foul-brood inspector, is in the dry belt and winters outdoors. At Invermere in the Upper Columbia Valley, wintering in an outdoor trench has been successful in an experimental way.

As in the newer sections of the American West, most British Columbia beekeepers are "from" somewhere. L. Harris came from England; and his experience goes back to the primitive, much-pictured, old-style English hives. He brought bees with him on the trip out—a journey of over 6,000 miles. His apiary is in an irrigation district where orcharding is general. The bees are under one disadvantage common in the mountain regions of British Columbia—they must range largely in two directions. On two sides are dry sagebrush slopes for cattle-grazing, and the more productive bottom lands at this point are rather narrow. Mr. Harris bottles much of his honey for the local stores. He also has a small but well-equipped shop where he manufactures bee supplies.

J. T. Bartlett.

Ft. Collins, Colo.

ALL readers of Gleanings will be glad to know that E. R. Root has recovered from a serious trouble, after passing thru "the valley and shadow of death." Long may he live.



* * *

The annual meeting of the Vermont Beekeepers' Association was held on Sept. 24 at the large and convenient home of G. F. Hendee in the town of Pittsford. The attendance was good. The hospitality of Mr. Hendee was unbounded. The topics discussed were of much practical value. Mr. Selser of Philadelphia was present and added much to the interest of the occasion. The larger crops of honey during the last few years, and the higher prices obtained for it, have very decidedly increased the interest in beekeeping in this section. A goodly number of women were present.

* * *

The necessity for the use of brown sugar by many beekeepers raises a new problem. How can we make the bees take it? I prepared syrup enough for one yard, two pounds of brown sugar to one of water, the same as I have prepared syrup from white sugar. I supposed the bees would understand that white sugar was scarce and that they must use this new kind of syrup. But, "no, sir"; they refused, or took it so slowly that the ground would freeze long before I could finish feeding, and many colonies were starving. What should I do? There was no time to lose. Well, this is what I did. Having been able to secure some light sugar, I mixed this with the dark, and then added one pound of honey to each ten pounds of syrup. I put in also a little more water in order to make the syrup somewhat thinner, as bees will take a thin syrup better than a thick one. Then my troubles seemed to be over.

* * *

In that interesting account of field meetings by E. R. Root, pages 643 to 647, we are told that B. F. Kindig "showed that the beekeepers of Michigan in the fight on bee diseases had many times been treating for American when they really had European foul brood. He went on to state that there is a malignant stage of European that looks very much like the American type." This is quite as true of Vermont as Michigan. I have about come to the conclusion that the same treatment should be meted out to it that we give to American foul brood.

* * *

When one reads thru a bee journal he is struck with the numerous troubles of beekeepers, especially in wintering; and he is ready to ask why bees could not have been made like ants, freezing up in the fall,

thawing out in the spring, and then going to work. How much honey it would save. Then to go farther, why should we be vexed with insects that de-

stroy our fruits and grain? Why the thousand and one things that make life a constant struggle? Is it not that we may become strong and develop into the highest manhood and womanhood? Were it otherwise, should we not become shiftless and weak and as non-resistant as the grownup babes of Paradise, about whom we read in an old-fashioned book.

* * *

Something new is that Standard Honey Grader, advertised on a cover page of the October issue of Gleanings. Its value is too apparent to need discussing. If it can be had at a price that the average beekeeper can afford, there need be no misunderstandings in the future about the grade of honey bought and sold.

* * *

The illustration and description of Root's bee-cellar, page 637, makes us almost envious. Think of being able to place several hundred hives in a clean dry cellar of even temperature, away from frost and snow and cold rain and sleet, for four or five months. Isn't it great? But I am consoled when further on the writer says, "If you are wintering well outdoors, do not change over to cellar wintering, even tho you might thereby save a half of your stores." Thank you, our bees winter very well outdoors.

* * *

That house-apiary described by H. W. Scott of Barre, Vt., is one of the best I have seen. After inspecting several house-apiaries and nearly breaking my back in trying to get into some of the hives, I had come to have a rather unfavorable opinion of them. In some places such houses seem almost a necessity, and it is a comfort to know that they can be made a success.

* * *

Dr. Miller says, page 658, that bees do not always clean up extracting combs when placed on top of a hive above an empty super. Well, they do not always do it here; but, as a rule, they do. By the way, I have had a number of inquiries as to how to get bees to take honey out of unfinished sections. Of course, if any honey is sealed, it should be uncapped, then placed above the brood-chamber and empty super, and laid down flat. If the honey is first placed in a damp place so as to absorb some water, the bees will be still more willing to remove it.

* * *

Most of the beekeepers I consulted at our state meeting reported one-half to three-fourths as much surplus honey as last year.

WHEN I was a very small girl every self-respecting family had a "parlor," an awe-inspiring room which was not designed for daily family use

but was kept sacred for company. The most expensive furniture, carpets, and draperies which the family could afford were in the parlor; and the room, unheated in winter except for festal occasions, was kept closed from the rest of the house, with the shades prudently lowered for fear of fading wall paper or floor covering. And that floor covering was generally Brussels carpeting, covering the whole floor and tacked down firmly at the baseboard, to be removed semiannually amid scenes of great activity and confusion, beaten and cleaned and then relaid. I wonder if our children of today ever even heard of a carpet stretcher.

Can't you just close your eyes, you who are old enough, and see one of those old parlors with its high ceiling, its marble-topped tables, its photograph album, its grand "whatnot," its wax flowers under a glass globe, its coal grate with a marble mantel, and horrors! its framed funeral wreath? Justice and the fact that my mother generally reads these articles compel me to state that she was never guilty of that last-named atrocity in household decoration, but I saw one somewhere, long, long ago, and it made such an impression on my childish mind that I remember it to this day.

The room next in importance to the parlor was the sitting room, a cheerful room more nearly corresponding to the modern living room; then came the dining room and then the kitchen. These rooms were apt to be furnished with what was left over or handed down from the parlor. In other words, the best was kept for making an impression on one's neighbors or friends; and the family used the more poorly furnished rooms, including the back stairs, if there were any.

In these days the tendency seems to be to build smaller houses with fewer rooms, to center the family life in one large living room with a generous fireplace, and to use the best we have for the family and not reserve it for guests. And we modern housekeepers realize how important it is to have an attractive, cheerful place in which to serve our meals, whether it is a dining room, a part of the living room, or a dining alcove. We likewise take pride in having immaculate bathrooms with just as good fixtures as the family purse will justify.

Just at this point my legal adviser, (husband, not lawyer) came along, picked up the first sheet, fresh from the typewriter, read it and remarked, "Your page is coming on all right, Stancy, but I fail to see how you can twist it into a food article."

Now I will just leave it to the readers;

OUR FOOD PAGE

Stancy Puerden

you could see I was on my way to the kitchen all the time, couldn't you? When you engage a modern cook she promptly stipulates that she have

the use of the front door, piano, etc. Well, I am modern, too, and I reserve the right to approach the kitchen from the front of the house or in any other way I please.

As I was about to remark when interrupted, nothing pleases me more than the great interest which is being shown in kitchens, kitchen plans, kitchen furniture, kitchen utensils and conveniences, and ways to make the kitchen attractive. It is really astonishing how many articles have appeared on the ideal kitchen in recent household publications, and while these articles differ in many ways they all agree on two points; namely, its furnishings should be so planned as to save steps in preparing meals, and it should be comfortable and pleasing to the worker.

Isn't it true that the increasing interest in model kitchens is due, in no small degree, to the fact that on account of the domestic-help shortage we housekeepers must spend more of our time in the kitchen than heretofore? For some years past most of the girls who have been willing to do housework have not been the sort who appreciate dainty kitchen furnishings or were willing to take proper care of them.

Last month I described to you my little cottage kitchen. For some time I have been doing things to our kitchen here in town, but I am not ready to take you with me into it yet. Maybe, some day I shall do so by way of plans and pictures.

This month I wish to tell you of a time-saver which I lacked space to mention last month.

If you ask the average housekeeper which part of her housework she finds the most irksome, ten to one she will mention dishwashing. This is probably not so much that it is disagreeable work, for it is not if one has plenty of hot and cold soft water and time. But that is the rub; it is the appalling amount of time consumed in washing all the dishes used by a good-sized family who enjoy their three meals a day. Sometimes it actually puts me in an ill humor to read an article telling how to serve a many-course dinner with useless service plates at the beginning and a complete change of china and silver for each course.

Before we went to our cottage in August, knowing we would have more company than at home, I purchased a dish drier which was comparatively inexpensive and proved to be very practical, altho simple in construction. This drier consists of a cylinder of heavy tin, 15 inches in diameter by 13½ inches high. The bottom is of heavy wire netting, about 4 meshes to the inch, and is reinforced

by 3 still heavier wires, crossing underneath. This cylinder rests upon a heavy tin pan, with a supporting ledge some two inches from the top, and both cylinder and base pan have substantial handles. The cylinder has a close-fitting cover, somewhat cone-shaped, thus permitting the dishes to be piled high in the center. All the table dishes for a family of six may easily be stacked in the drier.

When ready to wash dishes the drier is placed on an ordinary chair close to the sink, and as the dishes are washed they are placed in it, cups first, turned down on the netting, the various plates and saucers arranged to drain over these, ending with glasses on top. The cover is then adjusted, water put in the pan below the cylinder, the whole lifted to the range, and the water boiled for five minutes, counting from the time the water begins to boil. The cylinder is then uncovered and lifted to a table or bench and left until the dishes are cold when they will be dry and shining.

Someone told me that the drier would not be very satisfactory for glasses and silver. It is true that wiping with a towel is necessary to keep the silver bright, altho it may well be dried a part of the time in the drier; but don't ever wipe a glass if you purchase one of these driers. When the glasses were turned over on the bottom, beside the cups there were apt to be little drops of water on them; but by a little experimenting I found if they were washed perfectly clean with plenty of soap and then drained on top of the other dishes, taking care that they were tilted enough to permit the water condensed from the steam to run out, they would be perfectly dry and clearer than if a towel had been used. You know towels are apt to leave them slightly linty. You housekeepers know how much time is ordinarily consumed in drying glasses on a towel. In our family, altho we average only six at meal times, we often have about a dozen glasses to wash, especially in warm weather when everyone is thirsty between meals.

Did you ever notice that when a perfectly good man helps his wife by washing dishes he does not use enough soap to remove all grease? When I delicately hinted as much to my assistant on one of the afore-mentioned occasions, he said cheerfully, "Oh, I expect you to do your share. You should finish the job of removing grease by the rinsing and wiping." Now that is just where a man would fall down on using that drier. The dishes must be perfectly clean and free from any greasiness or they will not dry. For that reason I find it teaches a wholesome lesson in dishwashing, not to the nice man assistant, you understand, but to young assistants of the other sex.

One of the best points about the drier is that it sterilizes the dishes, and on account of the heat being gradually applied there is less danger of breakage than when boiling water is poured over dishes standing in a drainer. I might hesitate to put my thinnest

china cups in it for fear the weight of the dishes would break them, but with our everyday English porcelain we have never had any breakage in it, nor have any dishes been cracked or chipped.

The drier is fine for sterilizing jelly glasses and fruit jars and also for cold-pack canning. A friend of mine has canned hundreds of quarts of fruit and vegetables in a similar one and has never had a can spoil.

Good electrical dishwashers are on the market for about \$100.00; but as most of the cooking utensils have to be washed by hand anyway on account of food sticking to them, for a private family I believe this little \$5.00 drier saves almost as much time, as it takes but little more time to wash the table dishes while the water is ready. And while most of us would not feel that we could afford \$100.00 for a dishwasher, there are few families who could not afford the \$5.00 drier. It is a case where money spent is money, or its equivalent, time, saved.

It wouldn't be fair to tell this much without mentioning the drawbacks, would it? The first and chief, for a woman who has a weak back, is that it is rather heavy to lift on and off the range, when full of dishes; but while not a very strong woman I am able to do it, and my young schoolgirl helper thinks it easier than to wipe the dishes. A neighbor who is unable to lift it, stacks her dishes in it, and when her young son comes home from school he lifts the drier to the range and off again when the water has boiled five minutes.

In our home, after the evening meal when my schoolgirl assistant has removed the drier from the range and wiped the silver and cooking utensils which are too large for the drier, she goes on her way rejoicing to the movies or elsewhere, leaving the dishes in the drier until morning, when she removes them and sets the table for breakfast. This method does away with one handling of the dishes.

The second drawback is that the drier is not pretty and takes up a good deal of room. The fact is, it is in use so much of the time that one does not mind giving it space for the remainder. The cylinder dries with the dishes, and the base and cover will dry in a few minutes if inverted in the sink.

You may wonder why you have not seen this drier advertised. An ingenious man in Wooster, Ohio, made one for his wife to save her time, with no intention of offering it for sale, I believe. His neighbors begged him to make driers for their wives, and before long he found himself with a little sideline business. A number of the families connected with the Ohio Experiment Station have used the driers for years, and in this way a man from our town became acquainted with them and secured one for his wife and in a quiet way has taken orders for a few of his friends. I shall be glad to give the address where they may be obtained to anyone sending me a stamped and addressed envelope.

FOR two people to work together at the same hive is "sociable like," Dr. Miller, as you suggest, page 674. But the two I know the most about don't find that system quite such a time-saver as Miss Fowls does. It ought to be (and of course can be), but you see it can be so very sociable that the sociability itself takes part of the time. But who cares? Not these two sideliners!

For that matter, even if sideline beekeepers didn't want to take a certain amount of fun as they go, they almost have to do it in self-defense. It's about their only comfort when they realize how vigorously some of the professionals are opposed to them. Haven't you noticed how they slam us occasionally? Well for us that we keep our consciences clear—use factory hives and clean up foul brood when we get it and keep the grass cut and read the journals and sell our honey for the top price. Even after we've done all this, some of them won't let us play in their back yards. That's why we have to play in our own. And what a good time we have doing it!

* * *

It has been interesting to note how much darker than usual the honey has been around here this season. Everyone thinks it is due chiefly to the rather light clover flow that followed a heavy fall flow; so that in practically every yard left-over aster honey was mixed, in extracting, with this year's clover and locust. That makes it seem quite possible to leave too much honey on the hives in the fall. There is a general tendency among beekeeper writers to advise heavier and heavier winter stores, some asserting there is no such thing as too much. Perhaps not, for the bees; perhaps so, for the beekeeper. At any rate, it behooves him to be careful the next year about mixing the inferior fall honey with the high-grade product of the summer.

In our little home yard, several of our hives, by late September, had a shallow super sealed solid, with bright yellow cap-pings, filled with late summer honeys, probably chiefly smartweed, boneset, and bitterweed, with the bitterweed so predominating as to spoil it completely as a table honey. We had more of it than ever before, and it seems increasing rapidly. It came in July and lasted till nearly October. Waste spaces were bright with it. Now the aster flow is on, further out in the country, promising to be nearly as generous as last year, which was a record-breaker. We don't get much aster here at home.

* * *

One day last week I was watching Rebecca—remember Rebecca?—drawing water at the sink. She was so quickly thru and away,

Beekeeping as a Side Line

Grace Allen

and then so quickly back, that I gathered together a chair, a watch, some hand work and the slate that the favorite neighborhood baby so delights

in, and sat down to watch and take notes. For 35 minutes I was uninterrupted; during that time she made eight visits. It was interesting to notice that she entered the porch from the south end, and, when leaving, swerved out into the open from the east side.

There was practically no variation in the length of the periods she was at the sink getting water—it was almost an exact minute each time. The trip to the hive and back usually took about three minutes, but it varied from two minutes to nearly seven. I tried in my imagination to see what she did there in the hive. But I couldn't, because I don't know. Nectar, carried in the honey-stomach, is emptied into the cells. Is water carried the same way? And is it then given directly to larvæ, or placed in cells? The former, I suppose. I never heard of their storing it.

I didn't touch Rebecca that day at all, not wanting to interfere with her regular plans. But another day we became quite chummy. (I do hope no one will tell Dr. Phillips I said that!) Time after time I stroked her gently, down the wings and back, while she was getting the water, and she didn't mind a bit; or, if she did, she was too polite to betray the fact. And she kept on coming back.

But one day the Favorite Baby and I found her in a pitiful state. All wet and bedraggled, she was trying weakly, to crawl out of some water there in the sink. I think some one must have deluged her, perhaps with water either hot or soapy. I held my finger out to her and she crawled up gratefully. Not, of course, because she knew it was my finger!—and friendly. It was just something dry and convenient. (Tell Dr. Phillips this—if you tell him any!) I carried her into the sunshine, and finally left her on the porch rail. The next day I saw her twice. And never since. Probably the short life was shortened still more by the hard experience that day in the sink.

When you try to realize the uncountable numbers of living things in the world, those that fly and those that walk, those that swim and those that crawl, doesn't it sober you a little, thinking of the hard things that keep happening to them? But surely they'd rather live and take what comes, than not to live. Living is so wonderful.

* * *

Friends of ours, recently leaving Nashville for residence in Colorado, were determined to take their sideline bees with them. They positively declined to sell them here

with the idea of buying others there. They wanted their own bees. So they shipped them out to Colorado, several colonies, without mishap; and the very day they reached their beautiful new mountain ranch, everybody promptly settled down to work—bees and all. Don't you suppose those bees opened some of their compound eyes pretty wide when they first saw the lofty mountain ranges of Colorado after the friendly hills of Tennessee? And do you think it was hard to convince them that the alfalfa of Colorado bore nectar, in spite of the fact that the alfalfa of Tennessee bore none?

* * *

One evening Mr. Allen and I were in one of Nashville's good grocery stores, when we noticed, across the store, a stack of what looked like ten-pound buckets. The only word on the labels that we could read from where we stood was the one word, "HONEY," in large, heavy, black letters. Of course, we went right over to see whose honey it was, and bless you it wasn't honey at all. It was sorghum molasses. Wasn't that a case of tying your string to some one else's kite? This is how the label looked, as well as I can show it on the type-writer, the word "Honey" being far and away the most conspicuous thing on it:

It is Like
HONEY
Pure
Sorghum Molasses
Put up by
etc., etc.
Net Weight about 9 Pounds

The clerk assured us it was extra fine, and we later heard so elsewhere. I don't like sorghum myself; but I tasted some of this that a friend had bought and pronounced good. Ugh! The producer says it is like honey, but if honey were like that, I'd never eat any more honey. Yet, I suppose it is good sorghum. Possibly we are not justified, but we thoroly resent that label.

* * *

When I started to get our wax ready for the State Fair, I thought I'd read up a bit first, to see if I might get any new ideas. I was interested to see that while Dr. Phillips in his book advised smearing honey on the vessel in which the wax was to be molded, Geo. Emerson, page 76, 1918 Gleanings, warns beekeepers, if they use old five-gallon honey cans, to be "particularly careful that there be no honey on these cans, for it seems to make the wax adhere to the tin so strongly that it is almost impossible to remove the cake without cutting the can from it." Dr. Phillips and Mr. Emerson both recommend keeping the wax hot a long period, while the Editor, page 134, 1917 Gleanings, says, "it is desirable not to keep it in a melted condition longer than necessary." This second apparent conflict of

opinion is perhaps to be explained by the fact that the longer wax is kept hot, the freer it is from impurities, as they thus have longer opportunity to settle; but it is likely also to be darker.

I took our wax as it had come from the solar, and put it in pans directly over a low gas flame. When it was all melted, I turned out the fire and let it stand until it looked as tho it were about to begin hardening across the top. Then I rubbed honey in other pans, as Dr. Phillips advised (some beekeepers use soap successfully), and poured the wax into them most carefully, being especially particular not to let any of the sediment in. Later, the hardened cakes turned out easily, and were beautiful—receiving much praise and two blue ribbons. One lot, tho, I put into the fireless cooker, experimenting on keeping it hot longer; the objection was that when I took it out later, about half of it had hardened, which necessitated reheating. I was sorry to do this, not only because of the extra time involved, but also because I thought the oftener it was melted, the darker it became. But an old experienced beekeeper at the Fair told me it would grow lighter with each melting. How about this?

One thing that several of us became much interested in was the question which is really the most desirable, and the most nearly perfect color for wax. Among my own cakes, for instance, the two that attracted most attention were of different shades; they might be roughly described as lemon and orange. Some of the exhibitors thought the deeper yellow (it really wasn't orange, tho) the better shade, while others thought the lighter the better. We would all like to know what others think, or if there is a recognized standard. [The lighter-colored wax brings a higher price than the dark. Long-continued heat results in darker wax, whether there is sediment in the wax or not. On the other hand, if one desires a perfect cake, the wax should not cool too rapidly, since this will cause cracks from the inequality of the temperature on the inside and outside of the cake.—Editor.]

* * *

We found a colony queenless last week; as it was rather late to raise a queen, we sent away for a Golden, having never tried one before. Saturday afternoon, Mr. Allen brought in the mail. "Here's your queen," he said, laying the mailing cage on the table, with the beautiful royal Golden inside. "And here's another someone else has sent," he added, producing another cage. Before I could say one surprised word, he had whistled. "There are two queens in this one," he declared. And before I could get one surprised look—"By George, are they all queens?" They weren't; but there were three queens in that cage—three beauties from W. F. Morris of Hendersonville. Don't ask me how he did it, for I don't know. He can do a lot of stunts, can Mr. Morris.



FROM NORTH, EAST, WEST AND SOUTH



In Texas.—The storm of the night of September 14 will take its place in history beside that of the famous Galveston storm. The Corpus Christi storm, as it will be called, centered upon that ill-fated city and its neighboring towns. On leaving the coast, it laid waste a strip of territory 50 miles wide and reached westward to the mountains of west Texas. Following the storm came rain and flood, completing the work of destruction. Everywhere papers and magazines have been filled with the story of the loss of life and the destruction of property. Those interested in bees will notice that the area extends across the famous honey section of southwest Texas. The damage to the bees is great, and at the present time even the owners of apiaries in the edge of the storm area cannot estimate their losses, as high water and bad roads prevent their visiting the yards. Many yards have been blown or washed away. In others, overturned hives were so drenched that all the young brood and even adults were drowned. The overturned hives induced robbing to such an extent that many hives are lost. Not only did the storm damage the bees, but also in the eastern part of this area the honey plants have been so severely torn that little fall flow can be expected. The beekeepers of this section are very hard to discourage, for hardly had the storm passed than they were in the apiaries preparing the storm-shattered bees for the fall honey flow.

The fall honey flow is on, and at this writing (Sept. 25) honey is being gathered all over the State. In east Texas a heavy blooming of goldenrod, boneset, and broomweed has already given a good yield and promises to continue until frost. Heavy yields from boneset are reported. One report gives 34 pounds each from 26 colonies. Broomweed is a remarkable yielder. It occurs in immense quantities and yields best as cold weather approaches. In southwest Texas, the small-leaved sumac and the coma have begun to bloom. These, together with broomweed and a number of minor fall honey-yielders, promise good winter stores. Coma is peculiar in that it blooms from October to February and produces a large amount of honey. Heavy yields from this plant in January are quite common in the lower valley. Among the peculiar plants of the Southwest are those which bloom after rains, the time between the rain and the opening of the flowers being very definite. The yellow rain lily is the first to respond, blooming in about 60 hours, the white brush in about five days, and the mesquite in eight. White brush is peculiar in that it yields little honey during the regular blooming period in the spring, but during the rain-induced blooming periods at this time of the year it yields heavily.

A plant new to us as a honey plant has

come to light this summer. If it has a common name it has not been given. Botanically it is *Brunnichia cirrhosa* and is related to buckwheat and heartsease. It grows in the lowlands of southeast Texas and blooms from June until August, yielding some surplus.

The honey yield has been very freakish in the central part of the State, one beekeeper reporting no surplus at all, and another having a good crop from the same locality. Investigations indicate that this was largely due to the condition of the colonies. Where the hives were very strong this spring a good surplus was stored, but where the colonies were weak they did not build up in time to get the main flows, and consequently they now have just enough for winter stores. The fall honey flow largely determines the strength of the colony the ensuing year. If the supers are full or have been removed and a good flow occurs, the bees in their haste to lay in winter stores will fill the brood-nest with honey and will so restrict brood-rearing that the colony goes into the winter weak and recovers slowly. This very condition occurred last year and is now again happening. It pays well to leave plenty of room until the first of November.

If there is anything in aluminum honey-comb, the beekeepers of Texas will know inside of a year or two. No matter where you meet a beekeeper, his first question is "How about the metal comb?" Both those who favor their introduction and those who do not, are agreed on one point—that they are going to try aluminum combs.

The loss of property in the commercial honey district, caused by the Corpus Christi storm, has produced a slight flurry in the honey market, as many who were holding honey for a normal price are now almost compelled to sell in order to repair storm damages. This flurry will be of short duration, as buyers will quickly absorb these emergency sales.

Much has been said relative to the white sweet clover as a honey plant in Texas and as to its cultivation. This year this plant bloomed from the first of June until August. In the northeast part of the State where this crop has been planted for some years and where the beekeepers expect a flow from it, it did better than usual; in fact, considerable seed was harvested. That this seed is all right is shown at College Station where a fine stand is now growing. This plot is located on the sides of a ravine and has not been in cultivation for a number of years. The seed was sown broadcast at a rate of 10 pounds to the acre (hulled seed) and disked in. The blooming period at one locality seems to be about four weeks. Where the plants were cut to retard the blooming, bees were not observed to work on the second blooms.

It seems as if there would be another



FROM NORTH, EAST, WEST AND SOUTH



horsemint flow next year; the young plants are showing up well now, and where the seed was sown are so numerous that they must be thinned. Where horsemint grows in quantities its blooming season can be prolonged to almost double its normal length by topping when the plants are about six inches high. This may be done with a mowing scythe. This topping causes the plants to branch out, thus delaying the blooming season and increasing the blooms.

A very interesting thing has come to light in subjecting a partly filled aluminum comb to beemoths. This comb was placed in a pile of worm-infested wax combs. At the end of two weeks it was removed. The only damage done to it by the larger beemoth was to tie webs to part of the wax caps, and to build several cocoons just inside the end-bars. Altho the cells had been drawn flush with the top-bar, there was not room enough for the larger worm to build its silk tube, and consequently little damage was done to the wax addition to the comb; also, the cells were not deep enough to allow a cocoon to be built. Now here comes the interesting thing—the lesser beemoth (an insect almost unknown to the beekeeper because of its confusion with the large beemoth) had been able, on account of its small size, to run its silk tubes between the ends of the metal cells and the wax caps, and also to build cocoons in the metal cells. It must be said in justice to the metal comb that moths would not work on it until it was placed in this pile of infested combs.

College Station, Tex. H. B. Parks.

* * *

In Minnesota.—The annual meeting of the Minnesota Beekeepers' Association will be held on December 3 and 4 at St. Paul in connection with the annual meeting of the State Horticultural Society. An interesting program is being arranged and when printed will be sent to all the members of the association. If beekeepers who are not members will write to the secretary, L. V. France, University Farm, St. Paul, enclosing a stamp, copies of the program will be mailed them.

This year the Department of Bee Culture of the State Fair adopted the score-card system for the judging of honey. The plan worked so well that it will, in all probability, be continued in the future, altho it may seem best to make some changes in the make-up of the cards. The following score-points were used: For comb honey, flavor and true to name of source 40 points, finish 20, color 20, uniformity 10, package 10; for extracted honey, flavor and true to name of source 40 points, body 30, color 20, package 10.

The beekeepers of Fillmore county held their annual meeting at Harmony on the 25th of September. They practically re-

organized their society, forming an association with co-operative features. This section is an extra-good honey locality.

The beekeepers of Aitkin Co. plan for greater things. They expect to form a county organization and hold meetings for discussions along lines of better and more extensive beekeeping. There the bees were bringing in nectar on the 17th of September, and considerable brood was found in the hives. This could not be said concerning some localities in the State. For instance, I had a colony on scales that made a net gain of 160 pounds from June 9 to August 14, but lost 15 pounds from that date to October 3. The weather was of the best, with no frost, bees flying nearly every day, but no nectar coming in and consequently the greater depletion in the stores. The soil here is light, and dry weather seems to have caused the failure of the fall flow. On account of the sugar shortage we predict that many colonies will go into winter quarters this fall short of stores.

Minneapolis, Minn. Chas. D. Blaker.

* * *

In Northern California.—Our honey season for 1919 is about to close (Oct. 5). For some beekeepers it closed some little time ago—in fact there are not a few who will maintain that the season never really opened this year. Thruout our southern portion the season was truly disastrous, and it might be said that during the year 1919 the Upper San Joaquin experienced its worst season in honey production since the beginning of the industry. With the exception of a few cars of orange honey early in the season the honey crop might be said to have been totally a failure. In our central and northern portions we fared better and produced from half to two-thirds of a crop. Alfalfa yielded better north of Merced County, which accounts for the fact that the central portion got half a crop from this source. The fall plants, altho possessing a good growth, did not commence to yield until about Sept. 17. These flowers (excepting blue curls which secreted practically nothing) yielded only half their normal nectar up to the end of September when a rain came and ended their usefulness for the balance of the season. The rain retarded, but did not shut off, the aphid flow along the rivers. Thus, in the central portion beekeepers may expect during October honey from the aphid on the willow, from eucalypti, and possibly some from blue curls. In the northern portion of the State alfalfa gave about half a crop, star thistle better than half, and in most sections blue curls not more than half a crop. Star thistle honey is an excellent product having a very thick body and fine flavor. The body is so heavy that considerable difficulty is experienced in extracting.



FROM NORTH, EAST, WEST AND SOUTH



The ordinary honey-pumps on the market will not take care of the honey satisfactorily, and Oliver Parkes of Davis has had to alter his pump in order to take care of this "sticky stuff," as he calls it. "Flies right out of the extractor and even a bee-veil won't keep it out of your hair," says Oliver Parkes.

For the season we might sum up the average production per colony as follows: South of Stanislaus County about 10 pounds per colony, and north of Stanislaus County about 60 to 80 pounds per colony, with perhaps a few favored localities as high as 80 to 120 per colony. The crop, as a whole, this year was darker in color than during normal years. In Inyo and Tuolumne counties beekeepers experienced fair crops. In the latter county it should be mentioned that H. H. Sherrard of Sonora is now bee inspector.

The Alameda County Beekeepers' Association is a live one. Cary W. Hartman is president and Ralph B. Calkins secretary-treasurer. The Association holds monthly meetings and has an excellent and wide-awake secretary in Mr. Calkins. His address is 5800 Hearn St., Oakland. The shorthand report of Government lecturers on beekeeping, as held in this State last winter, is the work of Mr. Calkins. These Short Courses conducted by Dr. E. F. Phillips contain in a condensed form a great deal of excellent and useful material.

Modesto, Calif.

M. C. Richter.

* * *

In Southern California.—One of the most destructive, as well as extensive, forest fires that ever visited southern California occurred since our last report was sent in. To speak more explicitly, three large fires were burning at the same time, one of them being in what is known as the San Gabriel watershed, lying north and east of Los Angeles. One was in the San Bernardino Mountains, near the headwaters of the Little Mojave River, and the third was farther north in the Little Tiajunga Canyon and reached nearly to Acton. In all about 150,000 acres were burned over. Altho not nearly all of this territory was occupied by apiaries, yet part of it was, and much more of it would have been if better roads had been built.

The wild sunflowers are blooming over thousands of acres of the grain lands of southern California, but apparently little honey is being stored from them. They come up after the cultivated crop has been harvested, and they bloom until winter.

The Southern California Beekeepers' Association held a two-days' picnic, Sept. 19-20, at North Kingsley Drive and Santa Monica Boulevard, Los Angeles. About 200 were present. Beekeepers were in attendance from as far north as Sacramento. Among

the speakers were Mr. Buchanan of Glendale, Inspector DeSelle of Los Angeles County, T. O. Andrews, inspector of Riverside County; and Editor Knabenshue of the Western Honey Bee.

California apiarists are again to be favored with a series of short course lectures to be given at Davis, Fresno, Riverside, and San Diego.

How long the beekeepers will endure the crowding and heavy shipping in of bees to our orange territory is a question yet to be answered. A man from one of the Middle-west States says, "We are going to ship 500 colonies to California in November and expect to unload at — (naming an orange district already well stocked with bees). We who live here and have apiaries located on the dry sage and buckwheat ranges, feel that we should have first chance on the orange locations. A while ago I hinted that it might sometime be necessary for our own protection, to pass laws against the shipping in of bees from other States. Nevada allows no bees to be shipped into the State on combs, and so makes it necessary to ship there in pound packages. Imperial County has for several years allowed no bees to be shipped in from the outside territory. There is much feeling among the beekeepers here that it is not a square deal to have thousands of colonies of bees set all around them every winter, ready to take the cream of the orange-honey flow and then to pull out in the spring for other places. It is all very well to talk of that brotherly feeling, but anybody who does not live and keep bees in or near the orange groves, has little conception of how this business has grown. From the general condition of the bees, I believe that southern California beekeepers will need all of the orange flow they can get in the spring of 1920 in order to get their honey-gatherers in condition for the summer flow. I do not want to be selfish in this matter, but I will have to agree with some of our oldest living writers that it would be well if we had some way of establishing the distance between apiaries and dividing the ranges equitably among the apiarists.

A number of beekeepers have been feeding considerable sugar for winter stores. Others say that they are going to feed later—about the last of November—feeling that it is too much of a stimulus to brood-rearing to feed early. We have just had quite a rain over southern California, and, with a warm fall, the bees should still be able to gather some neectar on many of our ranges.

Corona, Calif.

L. L. Andrews.

* * *

In Michigan.—Beekeepers who are unable to secure sugar in time to do the fall feeding for winter stores should not let the matter rest there and just



FROM NORTH, EAST, WEST AND SOUTH



hope that the bees will winter. At the first opportunity, sugar should be secured and made into bricks of hard candy. This food can be given at any time during the winter and the colony kept alive until it is possible to feed liquid food in the spring.

The many Michigan friends of P. W. Erbaugh, formerly Deputy Apiary Inspector, will be pleased to learn of his safe return from France and of his recent marriage to Miss Carol Fribley of Bourbon, Indiana. It was hoped and expected that Mr. Erbaugh would resume his former work in Michigan, but a much more remunerative position has been accepted by him in Indiana. His home address is Bourbon, Ind.

The clover continues to appear in spots where it seemed that the drought must have killed it. Next season's prospects are "looking up." The forest fires in the northern part of the State have burned over thousands of acres. While the raspberry has been destroyed in such places for a time, just the right condition has been made for an excellent growth of fireweed next year. A crop of fireweed honey is worth making some special efforts to secure.

The Government estimate of 29 lbs. per colony for Michigan seems to be liberal when only the summer honey crop is considered. However, many sections in the southern half of the State have had an unusually good fall honey flow. In the vicinity of Lansing the fall crop averages from 20 to 25 lbs. per colony. The principal source of this honey was goldenrod. This is particularly appreciated in view of the scarcity of sugar. A large part of the State, of course, was not so fortunate, and it is to be feared that the mortality this winter may approach that of two years ago.

Last winter was particularly favorable in Michigan for the wintering of bees outdoors, with little or no protection. It should be borne in mind that the chances are very much against having such a mild winter this year. Many of the exponents of little protection have pointed with pride to their success of last winter. How distinctly we remember the colonies that wintered successfully without protection, and how easily we forget that from 50 per cent to 80 per cent have died or just barely survived other winters of the past! It may be a happy trait of human nature to forget our troubles and adversities, but when applied to the bee business it sometimes proves a very unwise and expensive habit.

By action of the Executive Committee of the State Beekeepers' Association, the annual convention will be held in the first half of December, the tentative date decided upon being the 9th, 10th, and 11th. An effort is being made to secure a number of outside speakers, and the date may have to be changed a day or two to accommodate them. It is hoped to bring together at this convention some of the most successful hon-

ey-producers in the middle West. The program will be divided into beginners, professional, social, and business sections. A complete announcement will be made in the December issue and will reach the readers in time to come to the convention. Advance programs can be secured from the secretary, B. F. Kindig, East Lansing, Mich. These will be ready for distribution about Nov. 15.

By the co-operation of the Extension Department of the Agricultural College and the office of the State Inspector of Apiaries, it is possible to offer to the beekeepers of the State a series of two-day Beekeepers' Schools. It is planned to hold a two-day school in each of 63 counties of the State having either a county agent or a county beekeepers' association. The work will be started between the first and the fifteenth of November. Anyone particularly interested in these schools should write the State Inspector of Apiaries, East Lansing, Mich., for a schedule of the schools and a copy of the program that will be presented. It is impossible for the thousands of beekeepers of the State to attend the College Short Courses. We therefore feel it necessary to carry as much of the work as possible directly to the beekeepers in the form of these schools.

The committee appointed at the summer convention of the State Beekeepers' Association to meet with the representatives of the Federal Bureau of Markets for the purpose of formulating plans for launching a Michigan Honey Producers' Exchange met at Cadillac on October 8. After a thorough discussion of the various plans of handling the marketing problem, it was decided to ask the Michigan Potato Growers' Exchange to take on honey as another line of their activity. The committee will meet with the directors of the exchange on October 13 for the purpose of asking them to form a new department for grading, packing, and selling honey. The Exchange already has a well-established organization with about 85 local shipping associations and a yearly business of several million dollars. It seems that by combining with the Exchange the work would be very much simplified, as they already have every facility for doing business profitably and efficiently. The Exchange not only handles potatoes but also apples, small fruits, grains, seeds, and other farm products, and in addition has a purchasing department which buys all kinds of supplies needed by the members. Whatever action is taken by the committee will of course have to be ratified by the convention of the State Beekeepers' Association in December. B. F. Kindig.

East Lansing, Mich.

* * *

In Ontario.—Following a cool August, we have had here in Ontario unusually mild weather for September and October up to date (10th). I fed up



FROM NORTH, EAST, WEST AND SOUTH



one yard during the middle of September, as in that yard there had been no late fall flow, and brood-rearing stopped early altho beehives were very populous. As more or less pollen has been carried in during the past three weeks here at home locations, I have been wondering if the early-fed bees might not use up a lot of stores in brood. But they cannot rear much brood, as they were fed so much at the time of preparing for winter. This apiary winters in a cellar, and the friend who lives on the farm where the bees are, puts them in for me, so I do not see them from late September till the following spring. Last winter they received no attention whatever after being put in the cellar, and, judging by results, they were just as well off, or perhaps better off than they would have been, if I had been there to tinker with them now and then, worry about the temperature of the cellar, the amount of dead bees on the floor, some uneasy colonies, etc., etc.

While these bees were fed early, owing to the brood being out of the combs early, here around home where we had buckwheat all August, just the opposite is the case and we still have a lot of feeding to do. Generally speaking, after the first of October we are rather hampered by the weather being too cool, but this year we cannot make the headway we would like because of such warm weather. It is not safe to feed much before 5 P. M. on account of the danger of robbing, while other years I have commonly fed at one yard in the forenoon and another in the afternoon with no robbing. All of which goes to show the need of different methods of management, so far as locality and weather are concerned.

A news item in the *Toronto Globe* says that a new apiary building is to be put up at the Guelph Agricultural College, the work to start right away. The building is to cost \$40,000, and is to be of brick with stone foundation. It will be two stories and a basement. A building of this nature has been wanted for some time, and evidently the "powers that be" have at last been convinced of the necessity for better accommodation for the provincial apiarist.

In the last issue of *Gleanings* I stated that comparatively little honey had been sold yet, but for the last few weeks there has been an increased movement. Yet little seems to be going into the hands of the wholesalers; especially is this true of the clover honey. Most of the buckwheat goes to large dealers in Montreal every year, and this season is no exception. Most sales of honey seem to be between producers and retailers, altho of course, the usual trade is done also between producers and consumers. Last week while at Toronto I went into some of the wholesale houses, and in several cases they had not a pound of extracted

honey and seemingly did not wish to load up with any, being afraid of a slump in prices, I was told in one case. Some beautiful comb honey from eastern Ontario was displayed in one house, and it was being sold to the trade at 45 cents a section. The dealer stated that it would probably bring 60 cents at retail. Comb honey at 60 cents comes under the head of a luxury, and, needless to say, there is a very light crop of this article in Ontario this year.

The sugar situation is easier now, but the price is high, the present quotation being \$11.21 f. o. b., Toronto. While some have been delayed in getting sugar, the unusually mild weather will allow them still to get their bees in good condition for winter. Personally, I have had more feeding to do than for a number of years past. Bees are going into winter quarters in good condition, as a rule, altho European foul brood has weakened many apiaries. My own bees are seemingly in good average condition, but the clusters are not so large as in some years.

The Ontario Beekeepers' Convention is to be held in Toronto on Nov. 11-13. Don't forget the date and don't forget to come and see us. A hearty welcome is extended to beekeepers from "over the line" to come and spend a good time with us.

Markham, Ont.

J. L. Byer.

* * *

In North Carolina. The honey season for North Carolina is just closing. It will scarcely last longer than October 15, about which time killing frosts are due to choke off the final honey flows. The season in this State has been about a fair one in honey production. The mountain regions have enjoyed quite a good season, except for "near failure" in some localities where sourwood was the chief source of nectar. The Piedmont section has had a fair season, while the eastern or swampy regions have, as a rule, made a poor showing, due chiefly to long seasons of rain coming in the midst of important honey flows.

It is a generally noted fact, however, that where there are intelligent manipulation of bees and the use of improved hives and appliances, the honey crop has shown a distinct increase, most adequately rewarding the beekeeper who gives his bees this sort of care.

It is noticeable all thru the State that the old gum and box hives are giving place to the improved "workable" hives, and important commercial apiaries are springing up especially in the mountains and the coastal sections of the State where the most abundant and long-continued flora is found.

Raleigh, N. C.

W. J. Martin.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Uses Hood of Filter Cloth for Protection.

You may sing of the flowers, the birds, and the trees; I will sing of her majesty, Queen of the bees; you may drink to the bard, and the bold cavalier; I will drink to her Ladyship, none is her peer. All her movements are graceful, her carriage is proud, as she glides thru the palace, or mounts to the clouds. Oh, say, you can see, as she trumpets her call, every subject is loyal, responds one and all.

Oh, the hum of the bee is sweet music to me—I could sing more of that if I wanted to, but I don't want to, not just now. What I wanted to say was that it makes me laugh to see the "professionals" specify and argue about how to winter bees and how they should be stacked up or grouped together and boxed up and packed in this or that and buying lumber and sawing boards and carrying straw, etc.

I always winter on the summer stands. All I do is make a "hood" out of old filter cloths, which are practically rain-proof and wind-proof. I make them so they will just slip over the hive, and cover the hive with one shallow super on. The empty super I fill with burlap. For weak swarms I cover with burlap and building-paper for additional protection, and put the hood on over these. I never lose a swarm unless I neglect to see that the bees have sufficient food. The hoods cost me less than five cents each, and I could store a hundred in my trunk if I wanted to, but I don't want to.

When I have a swarm that is troubled with robbers, I slip over it the hood, which

acts as a camouflage, and discourages "porch climbers." I never use any tar paper around my hives. My bees are nice, clean bees and they don't like the smell of tar. I know they don't, for I have been "eavesdropping" on the little scamps for about 30 years and know some things that I never read in any of the "all-about-bees-and-more-too" books. J. F. Weybright.

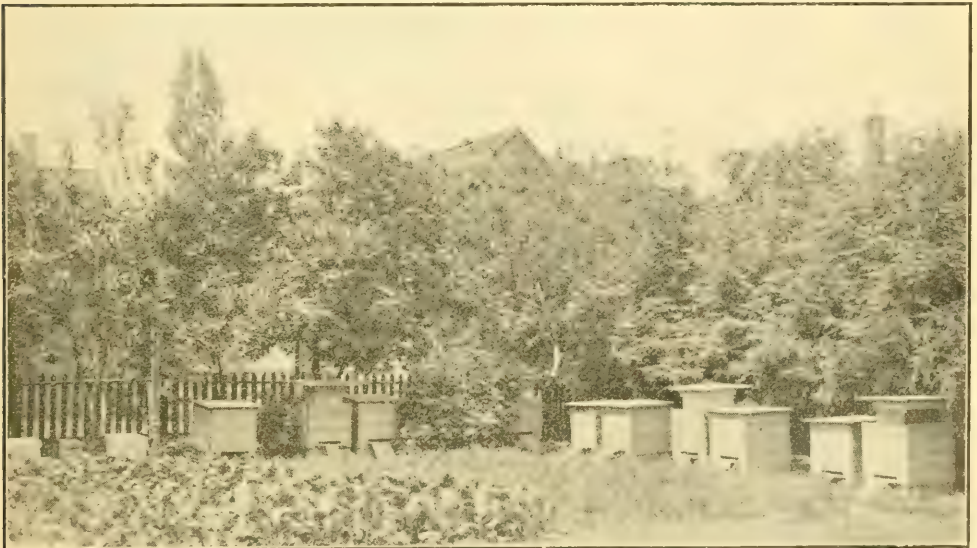
Ft. Morgan, Colo.

Entrance Accidentally Closed. Colony Apparently Improved.

Beekkeepers differ as to the proper size of the winter entrance where bees are wintered on their summer stands. I have had an experience which convinces me that if the colony is in good condition it needs very little ventilation.

Most of my bees are in ten-frame hives and are run for extracted honey. I winter on summer stands, use telescope covers, and pack paper between hive bodies and covers. Normal colonies are allowed a $\frac{3}{8}$ -inch entrance the full width of the hive.

Last fall I delayed packing the bees until early in December, and I think you will agree with me that vigorous hybrids are apt to offer very pointed objections to being handled at that season. In order to avoid argument while the packing was being done, a piece of lath was shoved into the entrance and left there until the bees quieted down. On March 15 it was discovered that one lath had not been removed and that for more than three months the colony had not had a flight and had practically no ventila-



Apiary of W. A. Rowland, Weston, Ontario.

HEADS OF GRAIN FROM DIFFERENT FIELDS

tion. The colony was found to be in good shape; bees and combs clean, good stores, and brood-rearing progressing finely.
Granville, Ill. Edwin O. Gunn.

Reese and Knight Move Colonies Successfully.

Reese and Knight, who have bees on the Twin Falls Tract as well as several yards in Utah, shipped 325 colonies in a car June 20. It was very hot at the time, and, as I hauled and helped place them in yards when they

which were handled daily by the writer, showing just how a hive is opened, the frames of comb and bees removed, the queen found, and then the frames replaced.

The bee and honey exhibits were judged by the writer, who remained with the exhibits during most of the time of the fair, and who was quite surprised at the interest manifested by many in beekeeping and honey production in the Northwest. It will be his endeavor, as well as that of the Spokane Seed Company, to do everything possible to spread apicultural information thruout this part of the country, and, if possible, increase the production of honey thru the keeping of more bees in a better and more efficient manner. We see no reason why, thru a systematic effort, this can not be accomplished during the next two or three years. It is a piece of important conservation of resources that should be pushed to the farthest limit.

George W. York.

Spokane, Wash.



Truck load of bees hauled by Reese and Knight.

arrived, I had an opportunity to see for myself the result of such a shipment under hot conditions. The colonies were loaded in the car with 2 by 2 strips between each tier, and wire screen on the top and bottom of each colony. Water was used several times on the trip. The result was one colony drowned, while the balance came thru in good condition. We moved this car load by three truck loads, 108 colonies to the load, using the two-inch strips between tiers. They were hauled several miles to different locations in the sagebrush close to the irrigated fields.

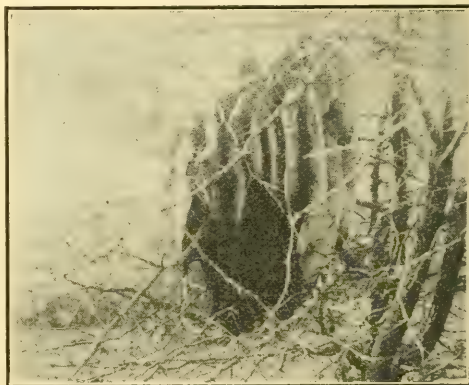
M. C. Ware.

Twin Falls, Ida.

Bees and Honey at Spokane Interstate Fair.

There is an unusual lack of interest on the part of beekeepers in making exhibits at fairs in this part of the country. The exhibits in the bee-and-honey department of the Spokane Interstate Fair this year were the smallest in many years. It is the intention of the Fair management, and a few local people who are interested, to see what can be done toward creating more interest in the apiary department next year. Premiums to the amount of \$132 were awarded, most of which were taken by J. E. Whitefield, E. D. Kingsland, and Mrs. M. E. Baker.

The Spokane Seed Company had a full colony of Italian bees in a wire cage perhaps six feet high and four feet square,



This large colony together with their eight combs was found suspended from a limb late last fall by F. E. Hawkins, Copley, Ohio.

Why Invalids Should Prefer Comb Honey.

Page 856, 1917 Gleanings, details the recovery of an invalid by practically making honey his chief diet; and the patient pointed out that it had to be comb honey, not extracted, which last did not react so well on his system. Mr. Fuerden, who reports it, does not seem to guess the cause.

Now, let's see: Why do so many of us after dinner fish out a nickel package of chewing-gum, and proceed to imitate the family Jersey thru its mastication? Said gum's advertisers will tell you in yard-high letters that it promotes digestion by increase of saliva. And I am inclined

HEADS OF GRAIN FROM DIFFERENT FIELDS

to believe there's something in it, as the damsel said before shaking a live mouse out of her stocking.

Well, translating this into terms of bee-dom, isn't it quite likely that Nature knew what she was about, and supplied the indigestible wax with the honey to compel chewing, and thus give the honey the needed saliva for its right digestion? That's my guess.

John Preston True.

Boston, Mass.

Fifty-seven.

(With Apologies to
Walt Mason.)

Winter winds begin to bluster, and the bees now form a cluster.

Thus they make a ball of bees, with outer shell so snug and tight, that within they're warm and cozy, where they dwell so pink and rosy, keeping every remote corner 57 Fahrenheit. Some must keep awake and chipper, fighting Jack Frost's piercing nipper, for the heat is made by active bees within the inner court. Outer guards, all in a shiver, speak with voices all a-quiver, "Girls, she's down to 57,

speed the action in the fort." So they start fantastic prancing, buzzing, wrestling, and queer dancing, squirming faster when it's colder, thru the winter long and punk. When it's under 57, stealthily this beastly leaven works, converting healthy bees into a pile of living junk. Then their squeaky joints are rusty, and their honey-sacs are musty; they have rheumatism in their backs and ashes in their grates. Can they last till Spring's returning, while their jaded lives are burning day and night so every nook its 57 indicates? Let us give them winter packing now, to save their frames from racking. Then, by heck, we put a check on these gymnastic monkeyshines. Packing helps them fight their battle thru the storm's wild roar and rattle, saving them the under-57 chill along their spines. Just to keep this timely warning right before us night and morning, twenty million signs, put up by Heinz, are glaring everywhere; and his blatant 57 speaks in languages eleven, "Pack your bees so snug and warm that 57's always there."

Bill Mellvir.

Here and There.



THE BACK LOT BUZZER.

How's a fellow to know what the new European fowl brood looks like, when Phillips, Root, Miller, etc., all get fooled.

Ma says it reminds her of what Josh Wise once said, "What's th' use of knowin' so much, when so much of what you know ain't so?"

QUESTIONS.—(1) I have some extracted clover honey of the 1918 season, which has soured. It is the first time this has ever happened with me, and I am at a loss to understand it. This honey was left in the combs from the clover flow of 1918 until I extracted it this spring in June. It was at least three-fourths sealed over, and I am sure it was well ripened. I stored it in a building that was dry but subject to freezing at times. Would this affect the honey? (2) Must honey be kept in an air-tight container? (3) How long will well-ripened extracted clover and buckwheat honey keep? (4) I have a quantity of this honey, and I should like to know if it can be used next spring for stimulating the colonies. Would heating it help when feeding?

Frank M. White.
New York.

Answers.—(1) If the honey was perfectly ripe we should not expect it to ferment unless it became damp from being exposed to damp atmosphere, as in the case you describe. The dampness of the atmosphere doubtless combined with the honey in the unsealed cells, and fermentation resulted. When honey is extracted from the combs and put in tin cans it may be kept for years provided it is ripe at the time of extracting. (2) It is not necessary to keep honey in air-tight containers. (3) We have kept both for years. (4) If the honey has become granulated, you will, of course, want to heat it and get it in liquid condition, and also dilute it with some water before feeding. It may then be used as feed in the spring, if free from American foul brood germs, but would not be fit for winter stores.

Question.—I have five strong colonies, but they did not store as much honey in the supers as they should have done according to the abundance of white clover and other flowers there have been this summer. What was the trouble?

Wisconsin.

Albert Guthu.

Answer.—This season was very unusual in many localities; and where there was an abundance of bloom there seemed to be but very little nectar in it, so that the bees made little or no honey in many places. If your colonies had good queens, and were strong, the fact that you got no honey was probably not due to the bees but to weather conditions. We are all hoping for a better crop next year.

Question.—I had a very weak colony in the spring—only a handful of bees. I gave them a frame of brood to help them along until I had a fair-sized colony. Then on July 8 I gave them a frame of brood with a queen-cell which they accepted, and the colony built up very rapidly. In August I raised four frames to the upper story with an excluder between; cut out queen-cells above, and gave them the once-over every week to see their progress. On Sept. 1 I put the bee-escape on, intending to take off the super, but found they would not leave the super. On examining I found a queen above, and also one below—no brood above, and no eggs. I gave the upper super an empty frame to see if the queen was fertile. On Sept. 8 I found eggs in the upper super and set it aside and gave three other frames of brood from other

GLEAINED BY ASKING

Iona Fowls

colonies. How did the queen get in the upper super? Why no brood, altho they had room there? Did I do right by setting aside, or should I have put the queen below and killed the lower queen? The lower queen is only two months old. I have had several during the season in which I found mother and daughter working side by side, but the above I cannot fathom.
John A. Braun.

New York.

Answer.—If there were enough bees to make two good colonies, then you were right in setting them off to one side as you did, provided also that the queen was a good layer. Of course, if you saw only eggs and no sealed brood, it might be that when tearing down cells you missed one and a queen was raised in the upper story, never had any chance to mate, and was, therefore, a drone-layer. In this case the brood would by this time tell the story, for, of course, it would be drone brood. If you find the queen above was a laying queen capable of producing worker bees, then there must have been an entrance to the upper hive where she was able to leave and be mated; or else you had two queens in the lower hive at the time you put the bees and brood above, and accidentally put one of those queens in the upper story. Of course, it would have been unusual to have two queens in that lower story; but at the time you gave the colony the queen-cell it may be that they already had a laying queen that was old and playing out so that they were willing to accept a new queen and at the same time tolerate the old one.

Question.—Will it injure the bees to paint hives containing them?
Thos. M. Keller.
Illinois.

Answer.—If a great many hives are to be painted, a cool time should be chosen so that there will be no danger of the bees flying out and alighting in the fresh paint. When but a few hives are to be painted, plenty of drier should be used and the hives painted along toward night. The odor of the paint will not injure the bees in the slightest.

Questions.—(1) If I take a queen from among the workers while clustered on a tree, can I put her in a cage with a section of honey and preserve her for future use? (2) Will the workers return to their parent hive and stay? (3) Will a queen pass thru a one-way Porter bee-escape with the workers? (4) Can a queen sting while one is clipping her wings?
E. R. Webb.

—New York.

Answer.—(1) The queen would die in a short time if no attendant bees were left with her. If she were put in a queen-cage with a few of her own bees, and the cage provisioned with a good queen candy, she might be kept easily for a week or more. (2) If one finds a queen in a cluster like that, unless this is a first swarm he can not be certain that there are not other queens

there also, so that, after removing one, it would be quite possible for the cluster to leave for new quarters. If no other queen is left with them, they would, of course, return to their hives. (3) Most queens are too large to pass thru a bee-escape as the workers do. (4) Reports of queens stinging when being clipped are very rare indeed. We have clipped thousands, but never have been stung by one.

Question.—Please give me your opinion as to how many hives of bees could be kept profitably on a five-acre orchard (apple) tract. The trees are eight years old, and the tract is surrounded by other orchards, perhaps a hundred acres within two miles.

C. R. Gale.

Washington.

Answer.—Simply for fertilizing the five-acre orchard you would probably not need more than five colonies. If you are thinking of the honey to be obtained in the spring from not only the five acres but also the hundred acres surrounding, we would think that an apiary of perhaps 30 colonies would be about right. The fruit trees would help greatly in the brood-rearing in the spring, but of course in order to get a good crop of honey you would have to have some other good source of honey later on in the season, since you could not depend upon your fruit trees for your main source of honey. The honey is good for building up colonies, but is of poor grade and not very good for surplus honey.

Question.—A local paper had the following: "An Indiana beekeeper has succeeded in breeding a race of stingless bees. They are a cross between Cyprian drones and Italian queens. These bees gather more and finer honey than their armed cousins, and also resist disease better." Will you kindly inform me what you know about them and their alleged advantages in industry and resistance to disease?

Connecticut.

Raymond L. Hills.

Answer.—The clipping you inclose has already been called to our notice. There are two great genera of stingless bees which may be found from the southern boundary of the United States as far south as Argentina. These bees are quite inferior to the ordinary strains of hybrids and Italians, producing a much smaller amount of honey. Evidently the story of these stingless bees has become somewhat distorted in the telling, for certainly we know of no cross between the Cyprians and Italians that is stingless. In fact, Mr. Mel Pritchard says his experience is that this particular cross between the Cyprians and Italians is among the most vicious of bees, that their honey-gathering qualities are only ordinary, and that they are not nearly so immune to disease as the Italians.

Question.—Would it be advisable to move bees within 2½ miles of a smelter? I think this is a lead and zinc smelter. I understand that the gas from this smelter kills the vegetation near by. What would you consider a safe distance?

Illinois.

Carson Donnell.

Answer.—It has been repeatedly shown that colonies of bees may be affected by gas from smelters anywhere within a distance of five miles, and therefore we would con-

sider the location you suggest too near the smelter. To be sure, if there is plenty of forage for the bees near the apiary they are not likely to fly a distance of five miles, and yet the fact that the gases extend a considerable distance from the smelters and that the wind often blows them some distance further makes it desirable to locate further away than five miles.

Question.—Are there any laws about keeping colonies on a city lot?

F. A. Clark.

Pennsylvania.

Answer.—We do not believe you will find any law preventing your keeping bees in town so long as they give no trouble to passersby. Of course, if they prove themselves a nuisance it would be necessary to move them. According to law, if bees make trouble the owner is not considered liable unless he has been previously notified that the bees had been making a disturbance, and he has allowed them to continue to trouble passersby. Then in case damage is done he would be considered guilty of negligence.

Question.—Would creosote or some of the coal-tar derivations do instead of paint for hives? In this climate untreated wood seems never to quit drying up and getting smaller. Is it the usual practice of most beekeepers to paint the inside as well as the outside of hives?

J. B. Miller.

Wyoming.

Answer.—It is not necessary to paint the inside of a hive, since the bees propolize all the cracks and crevices themselves, and it is not exposed to the weather. We do not think that creosote or coal-tar products would be very acceptable to the bees if placed inside the hive, since the odor would be objectionable to them. We at one time used coal tar on some covers, but found it very unsatisfactory. In very warm weather it has a disagreeable way of adhering to hands and clothing. We believe most beekeepers would prefer paint.

ANSWER BY JOHN H. LOVELL.

Question.—I am inclosing a sample of clover I have found growing in great profusion on some land we recently purchased. The clover grows as vigorously and is as large as red clover. It has all the characteristics of white clover except size. The bees were busy at work on it during last June. Honeybees, bumblebees, and the smaller varieties of bees and butterflies were all busy. I should be glad to have its name.

E. G. McCormick.

Arkansas.

Answer.—The name of this plant is buffalo clover (*Trifolium reflexum*). It grows wild from western Pennsylvania to Texas, and southward (thru Arkansas) to Texas and Florida. The standard or large upper petal is rose-red, while the wing and keel petals are white; thus while the heads are nearly as large as those of red clover, in color they are suggestive of white clover. As in white clover, the flowers are reflexed and turn brown with age. In view of the short and comparatively large corolla-tube, probably all the nectar can be reached by honeybees; and as it is freely visited by honeybees, bumblebees, and smaller bees and butterflies, it is, no doubt, a good honey plant.

THE Bureau of Entomology in co-operation with the Extension Services of the several States will conduct extension short courses for commercial

beekeepers this fall as follows: North Yakima, Wash., Nov. 10-15; Davis, Calif., Nov. 17-22; Fresno, Calif., Nov. 24-29; Riverside, Calif., Dec. 1-6; San Diego, Calif., Dec. 8-13; San Antonio, Texas, Dec. 15-20. These courses will, in a general way, be like those given last winter in California, New York, Indiana, Iowa, and Minnesota, and like the Chautauqua recently held at Madison, Wis. Messrs. Phillips, Demuth, and Sturtevant of the Bureau will assist in these meetings, and the remaining time will be occupied by local beekeepers and local extension men. In Washington, H. A. Scullen, Special Field Agent of the Bureau, will assist. One additional extension short course may be given on this circuit; if so, we shall give the announcement later.

The general plan of the course is for Messrs. Phillips and Demuth to discuss the care of bees thruout the year, giving the behavior of the bees and the application of this to beekeeping practice. On Wednesday afternoon, Mr. Sturtevant begins a series of lectures on disease, ending Saturday morning with a discussion of treatment. Mr. Sturtevant will have laboratory equipment for examining samples, and beekeepers are invited to bring samples of diseased brood. Further particulars may be obtained by addressing the State Extension Director at Pullman, Wash., Berkeley, Calif., and College Station, Texas. These courses are, of course, free.

* * *

The new editor of the Western Honeybee, as stated in the September issue, is the Hon. S. S. Knabenshue, who has been a teacher, publisher, and for twenty years managing editor of the Toledo Blade. He has also served five years as American Consul at Belfast, Ireland, and five years as Consul General at Tientsin, China.

* * *

The Eastern New York Beekeepers Association will hold their twelfth annual convention in the Supervisors' room at the Albany County Court House, in Albany, N. Y., on Thursday, Nov. 20, 1919. Prof. Geo. H. Rae, extension specialist in apiculture, and other live beekeepers are expected to be present and address the meetings. Sessions at 9:30 A. M. and 1:00 P. M.

Stephen Davenport, Sec'y.
Indian Fields, N. Y.

* * *

New Hampshire beekeepers are getting in line. On Aug. 19, the New Hampshire Beekeepers' Association was formed at Durham

JUST NEWS

Editors

College, with about 75 present. Various speakers were heard, among whom were Prof. Wolff, the college apiarist, who gave a demonstration and

talk on bees; Allen Latham, who spoke on "How to Produce the Maximum Honey Crop"; and Mr. Selser, who spoke on foul brood.

* * *

The annual meeting of the Michigan Beekeepers' Association is to be held at Lansing on Dec. 9 and 10.

* * *

The Western New York Honey Producers' Association will hold their regular annual convention on Friday and Saturday, Nov. 14 and 15, 1919, at the Genesee Hotel, Buffalo. Those desiring programs should address the secretary, Howard M. Myers, Ransomville, N. Y.

* * *

Members of the Honey Producers' Associations of Douglas County, Neb., and Pottawatomie County, Iowa, joined on Sept. 6 in an educational and social meeting at the home of W. A. Jenkins, Omaha, Iowa. Among the speakers were H. C. Cook, Myron H. Swenk, Prof. W. H. Brokaw, Dr. E. W. Atkins, Otto Timm, and Earl G. Maxwell.

* * *

The 29th annual meeting of the Illinois State Beekeepers' Association will be held at Springfield on Dec. 9-10. The matter of a change in the membership fee will be considered. A good program is planned, and postals will be sent to the members as usual. Prizes, as usual, for essays. Let's have a crowd and a good time. Headquarters at Leland Hotel. Jas. A. Stone, Sec.

* * *

The 39th annual convention of the Ontario Beekeepers' Association will be held in the Carls-Rite Hotel, Toronto, on November 11, 12, and 13.

Following are the speakers and subjects: Wm. Agar, Kleinburg, "Beekeeping in New Ontario"; J. L. Byer, Markham, "The Selection of a Location for Beekeeping"; Prof. L. Caesar, Guelph, O. A. C., "Spraying and Its Relation to Bees"; D. A. Davis, Birmingham, Michigan, "Importance of Queens and Simple Methods of Rearing"; C. B. Gooderham, Central Experimental Farm, Ottawa, "Experimental Work in Beekeeping"; R. F. Holtermann, Brantford, "The Production of Honey"; Prof. J. E. Howitt, O. A. C., Guelph, "The Beekeeper's Part in Food Production"; Harry W. Jones, Bedford, Quebec, "Feeding and Stimulative Feeding"; F. W. Krouse, Guelph, "The Deep Hive"; R. W. Muckle, Winnipeg, Man., "Beekeeping in Western Canada"; John Myers, Stratford, "What Would Beekeepers Like to Know."

BEES, MEN AND THINGS

(You may find it here)

It has occurred to me time and time again that in the distribution of publicity in bee literature, Mississippi has been unjustly neglected. For

instance, in the A B C and X Y Z of Bee Culture mention is made of scrub palmetto, gallberry, and titi being present only in Florida. Our own coast country is a vast cut of land covered with gallberry. The streams are lined with titi, and the swamp areas, of which there are many, are full of tupelo gum. From observations that I have made on the coast this past year I see no reason why, if this part of the country were given some publicity, there would not spring up some commercial apiaries. Is there not some way in which we can introduce into the unborn literature the fact that important honey plants of the Apalachicola region of Florida are present right here in Mississippi in sufficient quantities in many localities to make this State advance in its commercial output?—Robert B. Willson, Oktibbeha County, Miss.

According to the latest report from Britain, quite a new and valuable use has been found for the sting of the bee. While presiding at a lecture at the Scientific Exhibition in the Central Hall, London, England, W. T. Reid, late president of the British Beekeepers' Association, said he had recently made a most useful discovery. He found that the poison from the sting of the bee was an almost infallible test as to whether a person was liable to succumb while under an anaesthetic. If a person suffered from nervous weakness, a bee-sting on the hand would cause a large swelling and affect the glands of the body. A person so affected should not be operated on.—John Y. McLeod, Ontario, Can.

On April 28 this year I caught a swarm of bees. They were very industrious little workers, but the little red ants played mischief with them so that I had to make a bench to put the hive of bees on. The legs of the bench I put in cans filled with oil. The bees are very friendly and show no fight toward me at all, only toward the ants. They are so friendly that they will light right on my hand and eat out of it. Just now they are very busy carrying yellow stuff in on their legs. My bees do not work until the dew is dried off and then stay at it until pitch dark. The bees are small black ones with yellow stripes on. — George B. Stout, Iberville County, La.

My winter case is an extremely cheap case, and nothing better, for each hive can be left on its individual stand. I secure large packing cases from a branch of the Wanamaker store. The material is tongued and grooved, usually $\frac{3}{4}$ inch thick, and

large enough to make a bottom-board, the case, and a telescoping cover. These cases cost 25 cents each. The cover is covered with two-ply rubberoid roof-

ing at a cost of 14 cents per hive. This is treated with two coats of paint, and will last for years, and is absolutely weather-proof. All this is at a cost of 39 cents per hive exclusive of paint and nails. Can you beat it?—E. M. Barteau, Suffolk County, N. Y.

The first carload of comb honey sold by the South Idaho and East Oregon Honey Producers' Association contained three grades, which brought \$6.50, \$6.25, and \$6.00 per case, respectively. The carload sold for a total of \$8,000. The Association expects to send out 40 carloads of honey this season. The third cutting of alfalfa yielded quite a flow of honey in September, which is somewhat unusual, as last year the honey season was pretty much over early in August.—George W. York, Spokane County, Wash.

We are not in sympathy with V. V. Dexter of this State, page 606. There is far more range and market in this locality than there are bees to fill. We can remember when a certain orange-grower of California brought suit against his neighbor for allowing his bees to trespass in his orange grove.—J. H. Clark, Snohomish County, Wash.

I am a novice at beekeeping, but have had fine luck this (my second) year. I increased from 2 to 13 stands artificially, and safely introduced three-fourths of my Italian queens, besides taking from one stand 2 natural swarms, 60 finished sections of white spring honey and 40 of the dark later honey.—L. W. Derrin, Lane County, Ore.

There is no honey in this section, and no prospect for clover next year, as for two years it has been killed by drouth. Foul brood is everywhere, and many bees are without winter stores. The inspector is in this county today, and we hope for some relief.—M. L. Brewer, St. Joseph County, Mich.

We have taken a crop of about 5,000 pounds in two yards, and the Government reports a crop of over a million pounds in the province, with about 14,000 colonies.—H. W. Sanders, Sturgeon Creek, Manitoba.

I had two acres sowed in sweet clover last fall, and had a very good stand. I came home too late from "war" to cut the clover, and the bees surely had a harvest.—C. J. VanNieda, Berks County, Pa.

I successfully introduced a hybrid queen with a Jay Smith introducing cage, to a laying-worker colony that had been long queenless. The cage is fine.—F. M. Carey, Lake County, Ill.

SOME years ago there was considerable criticism and perhaps a good deal of sport, or at least attempted sport, in regard to demoniacal possession. Some learned instructor (?), I do not know but he came from Germany (I think very likely he did), informed us that humanity in olden times

were afflicted with epileptic fits, much as they are now—perhaps more so—and the people got an idea that certain persons were “possessed of devils,” when in reality they were either the subjects of fits or had gone crazy; and the idea was scouted that Satan ever took possession of the soul and heart of a human being. Of late years I have heard but very little about it. I think that Bible readers and these different organizations that have been disseminating millions of bibles and testaments generally accept the Bible as it reads. A perusal of our recent daily papers, it seems to me, ought to convince any one that “devils” (or something else) *do* get hold of men and women—yes, and even *girls* 16 years of age, as appears from the following item which is taken from the *Cleveland Plain Dealer*.

DROWNS WIFE IN POOL

MAN MARRIES GIRL, 16, WEEK AFTER, SAYS SHERIFF.

Pinckneyville, Ill., Sept. 8.—William Wrolen, 29, a railroad employe, is said to have confessed today to Sheriff Thimmig that on July 8, while swimming, he knocked his wife unconscious and held her under water until she drowned.

Two of his three children were playing on the bank of the stream at the time, according to the sheriff.

A week later Wrolen was married to Mary Brown, a 16-year-old girl, who also was arrested.

Of course, I do not know how much that 16-year-old girl was at fault in this terrible tragedy. She may have thoughtlessly and possibly innocently invited the attention of that wicked man. On the other hand, he may have started the hellish work by first casting admiring glances at that young girl, as in our second text. Years ago John B. Gough said something like this in one of his lectures. It happened somewhere in his travels that he caught sight of a sot who had fallen into a ditch; and while Mr.



Your adversary the devil, as a roaring lion, walketh about, seeking whom he may devour.—I PETER 5:8.

Whosoever looketh on a woman to lust after her hath committed adultery with her already in his heart.—MATT. 5:28.

And they come to Jesus, and see him that was possessed with the devil, and had the legion, sitting, and clothed, and in his right mind.—MARK 5:15.

Gough stopped and looked on the poor wretch he voiced his feelings something as follows: “But for the grace of God, there lies John B. Gough.”

Now, dear friends, what I am going to say seems pretty harsh and severe, and I suppose that many of my friends will utter a vehement

protest; but when I saw that clipping in the papers I felt like saying much as Gough did in thinking of that awful wicked man. “But for the grace of God, there lies A. I. Root.” This man had been married several years, for he had three children. Two of them were at the time playing on the bank of the pool. The above affair was, no doubt, deliberately planned beforehand. He persuaded the good, faithful mother to go in bathing with him. He thought that in this way he could escape punishment by pretending that she was drowned by accident; and he planned in some respects with much ingenuity, for Satan does have a certain kind of wisdom when he gets his victim fully in his clutches. But, oh, dear me! the guilty wretch forgot about the all-seeing eye of the great God above. If Satan showed wisdom in this part of the program, he certainly lacked it in urging that man to rush ahead and marry that poor child (for so he might call her) within *just one week*. Did he or she think they could ever be happy after such a crime? Poor deluded mortals! I do not know anything further about the parties than what is told in the above brief sketch; but I imagine that in one brief week *more*, both of them must have bitterly regretted their folly. Without question, in one week or less this poor man found out that this silly girl of 16 years could in no possible way take the place of the poor faithful and loving real mother in the care of those three children. Of course I have never committed any such *crime*, nor even *contemplated* such an act in my encounters with Satan; but I do know something of the remorse this man must have felt. Hundreds and perhaps thousands of criminals have committed suicide in order to escape

this remorse and the awful stings of conscience. And do they escape it? Who can tell? It is suggested by the *Sunday School Times*, and I think by some other religious periodicals that there is quite a disposition now to make fun of the idea of *hell*. My friends, there is not only something like the hell the Bible mentions in the life to come, but there is a hell here on earth that is unspeakably impossible to describe. Ask this man Wrolen about it, and I am sure he will tell you I am right. Why did he confess at all? Well, my impression is that the torture of a guilty conscience was such that he could stand it no longer. Perhaps he thought confession might make him feel better. Perhaps he had decided that the extreme penalty of the law and taking the electric chair would be a welcome change and a relief from the torture he was enduring.

As soon as this article is in type I am planning to mail it to William Wrolen, Pinckneyville, Ill.; and I want to call his attention to the fact that there is relief, even for such as he is. "Behold the Lamb of God that taketh away the sin of the world."

Some of my readers may object; and perhaps they are the ones who urge that he should suffer the full penalty of the law; and, in fact, I am inclined to think that humanity would be better off if he not only consents but requests that he be punished according to the laws of the land. From what experience I have had, I think it possible for him to go to the electric chair rejoicing—rejoicing *because* the awful burden has been lifted from him, and that the dear Savior has really "paid the price and set him free."

Our soldiers went to war, and bled and died for the salvation of the nations of the world. This man can go to his death in a similar way in order that married men and young girls in the future may be warned of the consequences of something that starts with what many people would say is a mere trifle. On page 679 of our last issue I published a warning from a poor suffering wife; and now I hope this warning will meet the eyes of a great lot of young girls 15 or 16 years old. Just now the boys and girls of our land and other lands have gotten hold of a sort of spirit of adventure. They crave excitement. A girl of 15 or 16 may innocently laugh and joke with a married man, and it may even go on until there is something more than just a casual acquaintance. The mothers and fathers of our land should be awakened to the responsibilities that rest on them. Watch out for your young girls.

While I write, September 11, our county fair is going on here in Medina. I went over there a few minutes yesterday. To tell the truth, I was more anxious to study humanity, especially the girls and boys of our county, than I was about anything else. One of the first things that met my gaze was the advertisement of a gypsy fortune-teller; but, come to think of it, she did not call herself a gypsy. It was some foreign name, and the notice was so worded as to attract the attention of girls especially; and the worst part of it was a whole crowd of girls in their teens tiptoeing just to see over the others' shoulders in order to look at that fortune-teller and hear what she had to say; and from their giggling I gathered that she knew how to "rope them in." I turned around in disgust; but on the other side of the way a similar fortune-teller was holding forth. I am not sure, but I think there were three of them on the fairground, and all three were apparently doing a tremendous business. By the way, some time ago in the city of Cleveland there was an ordinance passed forbidding fortune-telling, and every little while we hear of fortune-tellers being arrested. Will somebody tell me if this ordinance is still in force in Cleveland and other cities? And will the managers of our Medina County Fair "sit up and take notice," and go themselves and see what sort of entertainment is being permitted here in this county where the Y. M. C. A. seems to be ahead of almost every county in Ohio? And how about the Y. W. C. A.? Am I overdoing the matter in regard to the importance of keeping a check on the amusements now offered for our boys and girls? Much has been said about safeguarding the boys; but how about the girls? How about this unfortunate girl in our sister State of Illinois? How much was she to blame in this terrible tragedy that deprived three innocent children of a mother? We learn from the above clipping that she was arrested.

A few days ago Wynne Boyden, one of our grandsons, paid \$15.00 for a flight of 15 minutes in an aeroplane at Atlantic City; and while I dictate these words a flying-machine on our fairgrounds is carrying passengers. Another young relative, 16 years old, a cousin of Wynne, told me he would give \$10.00 for a ride of 10 minutes in the flying-machine. Said machine is performing stunts—looping the loop, etc., and it has just set the young boys wild. Now, if the boys want to take a flight, and have the money they earned to pay for it, perhaps there is no great objection; and even if a girl, 16 years old, should catch the craze

to fly, and even if she should lose her life by so doing, it would be a *thousand times better*, if lost in that way, than to be even "contributory" in leading some married man, especially a man with a family, out of the straight and narrow path, that leads from earth to heaven.

In closing let me once more refer to that terrible crime. Some of you, perhaps, have tried the drowning of kittens to get rid of them, or perhaps some other animals, and have witnessed their dying struggles. I know it is an awful thing to talk about; but I want to have my audience get a glimpse of that man's act that may prove a warning. This man persuaded the poor faithful wife, whom he had promised before God and man to love and protect and cherish, to go (very likely against her wishes) in bathing with him. Then he struck her a cruel blow—his poor, defenseless wife, the mother of his children—and then deliberately (O God, help the whole wide world to get a fair view of what Satan may lead man to do) held this poor, weak, defenseless woman under the water—no doubt, in spite of her struggles—until life was extinct and her heart had ceased to beat. And just here comes, perhaps, the worst of all. After that cowardly and awful act he (within a week) married that young girl. How about the parents of that girl? Where were they? And how about the State of Illinois? I shall have to confess my ignorance, but just now it is my impression that a girl 16 years old can not legally get married here in Ohio. I know they did, some 50 years ago; but if I am right our State saw the folly, as everybody else did, of allowing 16-year-old girls to get married. It has sometimes been suggested to me, and I do not know but the suggestion came from the Devil himself, that I had better "let the world wag" on as it will, for all I can do or say will not make very much difference anyway. But look here, my friends, another and better spirit says, "He that converteth the sinner from the error of his ways shall save a soul from death and shall hide a multitude of sins."

TALL OAKS FROM LITTLE ACORNS GROW.

One of the pleasant things of my old age, and perhaps I should also say one of my "happy surprises," is to hear people remark (and those whom I had supposed to be entire strangers) something as follows:

"Years ago I used to read your little bee journal, and made quite a success with bees"; or, "When I was just a kid we took your journal, and I used to read and enjoy the Home papers"; and I think a few have

added that my talks when the Home papers first started had considerable to do with shaping the future life of a boy just merging into manhood. With this preface I want to call attention to what our good friend Burbank said on page 612 of our September issue: "In fact, I think you are the one who encouraged me to start bee-keeping in New England years ago."

Well, after reading that I had a big laugh. And then I could understand why it was that friend Burbank, who is such a busy man, should reply in such a friendly way to all my letters to him.

And just now comes another of my pleasant surprises along this line. It is a letter written to my son Ernest.

I have yours of Aug. 28, and the sentiment expressed all the way thru coincides exactly with my own. I know that your father in the early days was interested in the anti-saloon movement. Dr. Russell has on several occasions mentioned how your father came to the rescue when funds were needed to develop the work.

About 35 years ago I used to buy supplies from your father when I lived at Gilbert, Pa. The last year I was on the farm I raised a ton and a half of honey, the receipts for which put me thru the Eastman Business College; and I have always had a pleasant recollection of bees, and also of the limited dealings with your father.

I followed several lines of business till 1892, at which time I traveled for a Wilkes-Barre tinware house, and traveled continuously for five years and two months, during which period I saved up sufficient funds to go into the five and ten cent business.

Last year the Kresge Company did over \$36,000,000 of business. This year, nothing unforeseen occurring, we shall do over \$40,000,000.

If not this fall, I hope some time next year to motor to your headquarters, make your acquaintance, and, incidentally, learn more about bees.

Very sincerely yours,

Detroit, Mich., Sept. 5.

S. S. KRESGE.

If our readers will now turn back to page 222 of Gleanings for March, 1917, they will find there a little item in the temperance column, headed, "He Did Not Scare Worth a Cent." This man Kresge was an enthusiastic temperance worker when Michigan was voting dry. In fact, he started out by making a contribution of \$10,000. Perhaps you all know about his "chain" (toward 200, altogether, in various cities) of five and ten cent stores. Well, a Milwaukee brewer, thinking he could scare Mr. Kresge, and taking it for granted, as all brewers do, that the god he worshipped was only dollars and cents, this brewer suggested that the wets might turn in and boycott his chain of stores; but it seems, to use a slang expression, the brewer found out he had "got the wrong pig by the ear," for here is the reply that Mr. Kresge sent:

"Yes, I put \$10,000 in the Wayne County dry fight; and since receiving your letter of inquiry I have added \$10,000 more."

Let us now go back a little.

Altho Mr. Kresge does not say so, I think it is quite likely that the writer of

the letter took Gleanings when the five and ten cent counter was my particular hobby. And, by the way, I have always had a kindly feeling for five and ten cent stores ever since that experience of mine. As an illustration, a good many times a young couple just married would come in, and the young wife would want a lot of things while they had only a limited capital. She would pick up the different articles listed at five and ten cents and say, "Oh! that is just what I have wanted so long, and it is only ten cents—just look at it, John." And they would go on in that way and fill up a basket with things needed in the new little household, and have some money left besides. I confess I was reluctant to give up my hobby of "useful things for a small amount of money"; but it came to a point where I should have to neglect the bee and honey business or let the "counter store" go. Now, Mr. Kresge has kept right on year after year, and he tells us in conclusion (without any idea that I might take the liberty of publishing it), that his sales now go away up into the millions. Of course, he does not make any such profits as they do in ordinary stores; but he does a lot of good, in furnishing needed articles at a very small margin of profit. I think I used to sell articles for 10 cents that cost me as much as 9½ cents by the hundred or by the gross; and may God be praised that *some* of our millionaires, at least, are laying up "treasures in heaven" as well as here on earth. Somebody has told me (I can not remember who) that this man Kresge with his abundant means and untiring enthusiasm did more to make Michigan dry than probably any other one person.

Here is an important point in closing that I think it might be well for all young men to note. The man who contributes liberally—perhaps we might say at times extravagantly—for temperance, foreign missions, or the spread of the gospel, gains the confidence of the people; and the "bread" that was "cast on the waters" of humanity without much thought of any financial return comes around again, "after many days."

ELECTION DAY NOV. 4TH. DON'T FORGET IT.

HE WHICH CONVERTETH THE SINNER FROM THE ERROR OF HIS WAY SHALL SAVE A SOUL FROM DEATH, AND SHALL HIDE A MULTITUDE OF SINS.

My good friends, if this meets your eye before election day (and I hope and pray that it may), by getting your vote on the side of righteousness you may "save many

a soul from death"—yes, perhaps thousands and hundreds of thousands in the great unknown future, by voting not only for Ohio dry but for the great United States and *finally* for the great wide world. Yesterday, Oct. 15, it was my pleasure to listen to W. J. Bryan. He reminded us that our own beloved State of Ohio started the Woman's Crusade in 1874. It also started the W. C. T. U., the Anti-saloon League (I helped), and that inasmuch as this same Ohio seems to be central, not only geographically but also in moral and spiritual matters, that it behooves us now as never before to be on hand and vote for prohibition, "bone dry" and *everlasting*. Everybody is watching Ohio. The liquor interests, in their greed for money (and more money), are fighting desperately, for they recognize they are in the last ditch. They are leaving no stone unturned. They have hired the biggest legal talent with their millions, and are resorting to every sort of trickery, misrepresentation, and falsehood, as you may see by their advertisements in our daily papers just now. If they should win, not only will the saloons come back, but we shall have beer, near beer, and "nearly" every other kind, doled out over the counter at every corner grocery in the land. If you have not already compared the results under both wet and dry legislation, just look it up. Not only are our workhouses empty, but our infirmaries and asylums have the number of inmates cut down until it would almost seem that every voter in our land must be without senses, or idiotic, if he votes *wet*.

Once more, may God help us in the conflict. Mr. Bryan suggests that on election day the schools should be closed. The children should be fixed up in their best, and parade the streets with banners reading "Vote for us," or something of the sort. Furthermore, he said he hoped in the future to see things made as easy for farmers (instead of going several miles to the voting precincts) as for those who live in towns. If our Government can afford to send a man to carry a postal card to a farmer every day in the year, can not Uncle Sam also afford to send somebody to get the vote of the farmer lest he say again and again, "I forgot all about its being election day"?

Once more, we on the dry side are making every effort for the physical, mental, and spiritual uplift of the unborn for ages to come. What are the wets working for? Just money, more money, and nothing but money. Can anybody dispute my word? Now may God help *you* to be on hand, and be sure also, that you vote right.

HELPS FOR DEAF PEOPLE.

On page 112 I told you about the Gem earphone, made at 47 West 24th St., New York. Since then I have purchased of the Earphone Co., 43-45 West 34th St., New York, an instrument that pleases me still better. The cost is about the same. Perhaps I should mention that these two companies have been hard at work, each of them, in making improvements; and they have been kind enough to supply me with their latest inventions. At one time I thought that the Gem was ahead, and at another the Mears; but the latest improvement by the Mears people has been what they call a "concentrator;" and at the present time, Oct. 1, 1919, the Mears concentrator is a great help in hearing a sermon or a lecture. During the Sunday-school exercises the only way I knew some of the speakers were talking was by watching the motion of their lips; without the instrument I could not hear a sound; but by pointing the concentrator directly toward the speaker, and being about the right distance away, I could hear every word without very much trouble. Our janitor has very kindly furnished me a little stand on which to rest the instrument; and this stand I can place at the proper distance and in the best position to hear. Of course, I dislike making myself so conspicuous, as almost every one would; but it enables me to hear the sermon when I could not otherwise. When it comes to the Bible class and the Thursday-evening prayer meeting I have this same little light stand and a chair back of it.

For the benefit of others who are afflicted like myself, perhaps I should explain a little further.

To get the best results, the earphone is placed up to my *left* ear, with my right hand also over my *right* ear so as to collect the sound. I seldom use the instrument unless I go to a meeting of some sort. Ordinarily by being within a yard or two of the speaker, with my right hand over my right ear, I get along very well.

Just one thing more in closing:

With all the instruments I have ever tried (and I have tested some that cost as much as \$75.00) I have never found anything that sounds exactly like the natural voice. There is always something you might call an echo—a disturbing racket much as you will notice in the ordinary telephone; and increasing the power of the instrument does not help—in fact, it makes matters worse; and in order to catch every word, I keep moving the earphone closer or further away. If a speaker gets to talking too loud, I am obliged to hold the in-

strument quite a distance from the ear. A good friend of mine down in our Florida home has one of the best instruments made, but he says it *now* gives him no help whatever. He says that it, of course, makes the sound of the voice louder, but so much mixed up, he can not distinguish anything.

I believe that most instruments are sent out now on free trial. I would not advise you to invest in anything where they want five dollars or a similar sum, not to be returned if the instrument is no help to you.

BURBANK'S EARLIEST TOMATO.

I did not notice Burbank's description of the above tomato until after we had tomatoes planted out in our garden. When I planted seeds of the Burbank I think that a few of the tomatoes in the garden showed blossoms; but, notwithstanding this, my first ripe tomato came from the Burbank. It is a smooth round tomato, fine quality; but being so extra early the tomatoes are not very large.

I now wish to mention another of which I can not give you the name. Some one of my good friends in writing me inclosed a few seeds and said their families were greatly pleased with them. I think he said he got the seed of the Henry Field Co., Shenandoah, Iowa; but I do not find anything in his catalog that describes it unless it is the Golden Beauty. Well, this particular tomato kept spreading out where it was not put on a trellis; and even where it was, until it almost threatened to cover the whole garden. There were green tomatoes in great abundance; and Mrs. Root began wondering whether they would have time to get ripe before frost. Well, they kept on growing bigger and bigger, and finally turned white; and after a while they took on a golden yellow. They were not smooth and handsome in shape—in fact, they were twisted all around until some look like three or four tomatoes all hitched together. One of them actually weighed $2\frac{1}{4}$ pounds. After the first one we had quite a few great, big Golden Beauties; almost perfectly round and smooth; and today (Oct. 15) the ground is yellow with them. Our neighbors are all supplied, and there the tomatoes are, going to waste. I think they are as nice tomatoes as I have ever tasted unless it is the little yellow pear tomato. But others do not agree with me. They say they like the red ones best. But I feel, however, that these tomatoes are of great value because they are so tremendously productive. I think I have procured nearly if not quite a peck basket from one picking of a single vine.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Light amber honey in new 60-lb. cans Van Wyngarden Bros., Hebron, Ind.

FOR SALE.—40 cases fine clover honey in new 60-lb. cans. Edw. A. Winkler, Joliet, Ills.

FOR SALE.—90 cases new crop clover honey in new 60-lb. cans, two in case, 25c per lb., f. o. b. here. W. B. Crane, Ottawa, Ohio.

FOR SALE.—Clover, amber, and buckwheat honey in 60-lb. cans, 2 per case.

H. B. Gable, Romulus, N. Y.

FOR SALE.—Good quality buckwheat honey in 160-lb. kegs, 18c per pound f. o. b. Seward Van Auker, Delanson, N. Y.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Choice Michigan white clover honey in 5-lb. pails, 12 in case or 34 in barrel. David Running, Filion, Mich.

FOR SALE.—New clover and buckwheat extracted honey in 60-lb. cans, 2 cans per case. H. F. Williams, Romulus, N. Y.

FOR SALE.—Well-ripened extracted clover honey in either ton or case lots. Chalou Fowls & Co., Oberlin, Ohio.

FOR SALE.—Extracted white-clover honey (well ripened) in new 60-lb. cans, 20c per pound, f. o. b. Marietta. J. G. Burtis, Marietta, N. Y.

FOR SALE.—Choice grades of extracted honey in new cans. Write for prices stating quantity wanted. Thos. Atkinson, Cozad, Nebr.

FOR SALE.—Finest quality extracted clover honey, in new 60-lb. cans, also in 10-lb. pails, for \$2.65 each. Charles Sharp, Romulus, N. Y.

FOR SALE.—Clover honey extracted from sealed combs only, in 5-lb. pails, 25c per pound, f. o. b. St. Louis, Mo. Fisbeck's Apiary, 4224 College Ave., St. Louis, Mo.

FOR SALE.—10,000 lbs. very fine flavor white honey in new 32-gal. oak barrels, 20c per pound f. o. b. New Smyrna, Fla. Sample 5c.

A. F. Brown, 29 Cypress St., Daytona, Fla.

FOR SALE.—Finest quality of clover extracted honey in bright, new 60-lb. cans and in 12-lb. cans. This honey is of fine flavor and of heavy body. R. C. Ortleib, Dolgeville, N. Y.

FOR SALE.—New crop well-ripened "Old Ky." clover honey, two 60-lb. cans to case, 22½c per lb. f. o. b. Brooksville. Sample, 25c.

Adam Kalb, Brooksville, R. F. D. No. 4, Ky.

FOR SALE.—Raspberry honey slightly mixed with goldenrod. Was all left on hives until thoroughly ripened. It is thick, rich, delicious, none better; put up in 60-lb. cans. Price, \$15.00 per can. Sample by mail for 20c which may be applied on order for honey.

John Hutchinson, Lake City, Mich.

FOR SALE.—A car of from 30,000 to 40,000 lbs. of very fine clover-alfalfa honey in new 60-lb. cans, two in case. Let me hear from interested buyers. Sample on request.

S. F. Lawrence, Hardin, Mont.

FOR SALE.—Extracted honey, fine quality clover, 25c; clover and buckwheat mixed about half and half, 20c. Two 60-lb. cans to case, in 5-lb. pails, 3c a pound extra. Some buckwheat comb honey at \$6.50 per case of 24 sections.

H. G. Quirin, Bellevue, Ohio.

FOR SALE.—Well-ripened clover honey in 60-lb. cans at 25c per pound, packed two in a case. This same grade of honey in five-pound friction-top pails, 12 pails in a case, at 27c per pound. Prices are f. o. b. shipping point. Sample mailed for 10c.

O. H. Schmidt, Bay City, R. F. D. No. 5, Mich.

FOR SALE.—Our crop of honey is now ready for shipment. It is a good grade white clover with a very small trace of basswood, almost water-white. It is put up in new 60-lb. tin cans, two to the case. This honey was all produced by ourselves above queen-excluders in nice white combs. Then combs were provided so that no honey was taken off until after the season when it was thoroughly cured by the bees. It costs more to raise a crop of honey this way, as we do not get as much per colony; so we have to have a little more money for this fancy article than the ordinary honey on the market. Try a small order and we feel sure you will buy no other. We can furnish at the following prices f. o. b. Northstar, one 60-lb. can \$15.50. In cases of two cans \$30.00 a case in any sized orders. The crop is short this year, and will not last long at these prices. We feel quite sure that the price will not be any lower; so do not be disappointed by not ordering early if you are looking for honey as good as money can buy.

D. R. Townsend, Northstar, Mich.

E. D. Townsend & Sons, Northstar, Michigan, offer their 1919 crop of white clover and white clover and basswood blend of extracted honey for sale. This crop (it's only a half crop this year) was stored in nice white clean extracting combs that had NEVER had a particle of brood hatched from them. We had more of those extracting combs than we could possibly use this year, and we piled them on the swarms as needed. NOT A SINGLE OUNCE OF HONEY WAS EXTRACTED UNTIL SOME TIME AFTER THE CLOSE OF THE WHITE HONEY FLOW; consequently, NONE could be produced that will excel this crop of honey. Of course, it is put up in NEW 60-pound net tin cans, and they are cased up for shipment, two in a case. If you are one of those who buy "just ordinary" honey, at the lowest price possible, kindly do not write us about this lot of honey; but if you can and have customers who will want the very best and are willing to pay the price, order a small shipment of this fine honey as a sample, then you will know just what our honey is and whether it is worth the little extra price we ask for it or not. We quote you this fine honey, either clear clover, or that containing about 5 per cent of basswood—just enough basswood to give it that exquisite flavor relished by so many, at only 25c per pound on car here at Northstar. Kindly address, with remittance, E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Comb and extracted honey, also beeswax. Send samples.

C. S. Fryer, 386 Halsey St., Portland, Ore.

WANTED.—Comb and extracted honey, car lots and less. Mail samples, quantity, and price.

W. Morris, Yonkers, N. Y.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations.

M. Betancourt, 59 Pearl St., New York City.

WANTED.—To buy comb honey.
Edw. A. Winkler, Joliet, Ills.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.

Hoffman & Hauck, Inc., Woodhaven, N. Y.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston.
M. V. Facey, Preston, Minn.

WANTED.—White clover or light extracted honey. Send sample, state how honey is put up and lowest cash price delivered at Monroe. Also buy beeswax.
E. B. Rosa, Monroe, Wisc.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WE BUY HONEY AND BEESWAX.—Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section, and sections to a case. Extracted honey, quantity, how packed, and send samples. Charles Israel Bros. Co., 486 Canal St., New York, N. Y.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

FOR SALE.—Pan Handle beekeepers, please note that you can buy Root bee supplies "next door."
Will C. Griffith & Sons, Elm Grove, W. Va.

STILES BEE SUPPLY COMPANY, Stillwater, Okla. We carry a full line of Root's Bee Supplies. Beeswax wanted. Free catalog.

FOR SALE.—Six-frame honey-extractor, reversible, power gear. Good as new.
O. A. Dugstad, Spring Valley, Minn.

FOR SALE.—New honey cans.—Two 5-gal. cans in a cleated end case at \$1.20 per case f. o. b. your station.
Edw. A. Winkler, Joliet, Ills.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.
R. & E. C. Porter, Lewistown, Ills.

FOR SALE.—Second-hand honey tins, two per case, in exceptionally fine condition, at 50c per case. Buy them now for next season's honey crop.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

Make your own foundation and earn money making it for others. The simple, easy way. Machine and outfit; hand, \$100; electric power, \$350.
Grand Haven Pattern Works, Grand Haven, Mich.

MAKE YOUR OWN HIVES! Complete hive-making outfit, with electric motor, almost as good as new. \$200 cash, quick. From Indiana. Address 73 O and B Co., c o A. I. Root Co., Medina, Ohio.

FOR SALE.—30 8-frame extracting supers; 15 8-frame dovetailed hives; 1 Novice honey-extractor, non-reversible. Used one time. No disease.
H. D. Hopkins, Otterville, Mo.

FLORIDA BEEKEEPERS.—You save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.
Crenshaw Bros. Seed Co., Tampa, Fla.

SEND TODAY for samples of latest honey labels. Liberty Pub. Co., Sta. D, Box 4E, Cleveland, Ohio.

FOR SALE.—One two-frame Novice extractor; Root-section press and one Daisy foundation-fastener, all in good condition.

R. C. Ortleib, Dolgeville, N. Y.

FOR SALE.—Supers and hives, new and used, at bargain. 70 colonies Italian bees. Very strong with bees. Plenty of stores for wintering. Extractor and other supplies.

R. Hibbard, Calcium, N. Y.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE.—200 new 10-frame cross style reversible bottom-boards at 50c each; 200 new 10-frame flat reversible covers made of best select white pine at 60c each; 100 new Alexander feeders for 8- or 10-frame hives at 20c each; 150 Boardman feeders without cap or jar at 12c each. All above goods are factory-made and have never been used. Write M. E. Eggers, Eau Claire, Wisc.

THE DOMESTIC BEEKEEPER is published "wholly in the interest of the honey-producer." It will help you to produce more honey, and will then help you to sell it at the best price. Published monthly, \$1.00 per year. Send for sample copy and list of liberal clubbing offers.

The Domestic Beekeeper, Almont, Mich.

WANTS AND EXCHANGE

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax.
Superior Honey Co., Ogden, Utah.

WANTED.—To purchase 10 to 300 colonies of bees, box hives or otherwise.
Chas. Schilke, Matawan, R. F. D. No. 2, N. J.

WANTED.—A postal-card-size camera. Must be high grade lens and shuttle.
I. C. Bachtel, Lake City, Calif.

WANTED.—One copy each of the following Swarthmore books: "Cell Getting," "Baby Nuclei," "Increase," "Simplified Queen-rearing." Edw. B. Beechey, 2334 E. Adams St., Philadelphia, Pa.

WANTED.—Beeswax, old combs and cappings to render on shares. Will pay highest market price and buy your share of the beeswax.
F. J. Rettig & Sons, Wabash, Ind.

WANTED.—BOUND VOLUMES OF GLEANINGS. Will pay \$1.50 each for volumes No. 3 (1875) No. 6 (1878), and No. 30 (1902).
The A. I. Root Co., Dept. W-1, Medina, Ohio.

FOR SALE OR EXCHANGE for farm land, 9 town lots with building; one-half acre goldenseal, shaded with bushes; also 65 colonies and outfit, with or without four acres of land.
S. Pitts, Stronghurst, Ills.

FOR SALE OR TRADE.—What have you? 89 single-colony 2½-story winter packing cases, painted, used two years; also 50 Alexander bee-feeders. Harry R. Fisher, 303 South 8th St., Montrose, Colo.

WANTED.—Frames with at least 50 per cent of cells well filled with pollen. The frames must be reasonably straight and free from foul brood.
Griswold Greenhouse Co., Ashtabula, Ohio.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., Pearl & Walnut St., Cincinnati, O.

FOR SALE OR EXCHANGE.—192 acres rolling land, well watered, good buildings; bearing orchard; about 60 miles from State Capitol; wonderful California climate. Write Mabel Robinson, Fort Bragg, R. F. D., Box 14, Calif.

WANTED.—To contract now for number of colonies of bees in different parts of Pennsylvania to be paid for and shipped in spring direct to purchasers. In eight or ten frame standard one-story hives. What have you to sell?

John N. Prothero, DuBois, Penn.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1919 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Son, Hamilton, Illinois.

REAL ESTATE

FOR SALE.—On account of failing health will sell my suburban home adjoining city of Denver, together with apiary of 165 colonies and all equipment. J. A. Everett, Edgewater, Colo.

FOR SALE.—350 acres of fertile land at \$20 per acre; 100 acres cultivated, pasture for 100 head of grown stock, fine tract of original-growth timber, orchard, etc. All necessary improvements in good condition. 175 colonies of bees and equipment, \$1,500. B. F. Averill, Howardsville, Va.

FOR SALE.—A wonderful bargain for some northern beekeeper who wishes to locate in the South. Our business with all of our city property, consisting of our well-established honey business, dealing in beekeepers' supplies, honey cans, and bees, together with our business house, and two-story residence of 10 rooms on adjoining lot, and three cottages in yard. Right in the center of the city of Florence. We solicit correspondence.

The Hyde Bee Co., Florence, Texas.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 84 Courtlandt St., New York.

Hardy Italian queens; one, \$1.00; 10, \$8.00. W. G. Lauver, Middletown, Pa.

Golden Italian queens, untested, \$1.00 each, six for \$5.00. E. A. Simmons, Greenville, Ala.

PHELP'S GOLDEN QUEENS will please you. Mated, \$2.00. Try one and you will be convinced. C. W. Phelps & Son, Binghamton, N. Y.

THREE-BAND Italians only. Untested queens, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00. H. G. Dunn, The Willows, San Jose, Calif.

FOR SALE.—Three-band Italian queens and golden queens, April 10, 1920. W. T. Perdue, Ft. Deposit, R. D. No. 1, Ala.

"She suits me" Italian queens, \$1.15 each from May 15th to Oct. 15th; 10 or more, \$1.00 each. Allen Latham, Norwichton, Conn.

FOR SALE.—Indianola Apiary offers Italian bees and queens; tested, \$1.50; untested, \$1.00. J. W. Sherman, Valdosta, Ga.

Leather-colored Italian queens, tested, June 1st, \$1.50, untested, \$1.25—\$13.00 a dozen. A. W. Yates, 3 Chapman St., Hartford, Ct.

FOR SALE.—Three-banded Italian queens, untested, \$1.00; \$10.00 a dozen. J. A. Jones & Sons, Montgomery, Ala., R. F. D. No. 1, Box 11-A.

When it's **GOLDEN** it's Phelps'. Try one and be convinced. Virgins, \$1.00; mated, \$2.00.

C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Three-banded Italian queens, untested only, one, \$1.50; six, \$8.50; dozen, \$16.00. P. C. Chadwick, 725 E. High Ave., Redlands, Calif.

FOR SALE.—Golden Italian queens ready April 15; \$1.00 each; \$10.00 per dozen.

W. W. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—60 colonies of bees, extracting combs, and equipment. Going into other business. Will sell cheap.

A. Houghton, 1½ N. Sag, Pontiac, Mich.

FOR SALE.—Bees, many Italians, 46 hives, brood-chambers heavy for winter—all goes to the best offer. W. S. Robinson, Fort Bragg, R. F. D. Box 14, Calif.

FOR SALE.—Queens, bees, three-banded and golden, for early shipment in packages, one to three pounds, with or without brood-frame. No disease. M. Voinche & Son, Hamburg, La.

FOR SALE.—230 hives of bees and stands and all supplies, houses and machinery, tools, Ford runabout. Find me at place, 1½ miles east and 80 rods north of Olney Springs, Colo.

W. H. Bartleson, Olney Springs, Colo.

FOR SALE.—Michigan-bred Italian queens. Am now booking orders for Aug. 1st delivery. Three-band only. Untested, 1, \$1.00; 12, \$10.00; 100, \$80.00; tested, \$1.75 each.

D. A. Davis, North Detroit, Mich.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May and June, untested, each, \$2.00; six, \$7.50; doz. \$14.00; tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnetts, Va.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, \$1.25; 12 queens, \$14.00. One pound of bees with queen, postpaid, \$6.00. Safe arrival and satisfaction guaranteed.

M. Bates, Greenville, R. D. No. 4, Ala.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are **GREAT HONEY-GATHERERS, BEAUTIFUL and GEN-TLE.** Virgins, \$1.00; mated, \$2.00.

C. W. Phelps & Son, Binghamton, N. Y.

ITALIAN QUEENS.—Northern-bred, three-banded, highest grade, select, untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price \$1.00 each. J. H. Haughey, Berrien Springs, Mich.

NORTH CAROLINA BRED Italian queens of Dr. C. C. Miller's strain of three-band Italian bees, gentle and good honey-gatherers. July 1 until Oct. 1, untested, \$1.10 each; \$11.00 per dozen; tested, \$1.60 each; select tested, \$2.25 each. Safe arrival and satisfaction guaranteed.

L. Parker, Benson, R. D. No. 2, N. C.

FOR SALE.—Queens of Moore's strain, leather-colored, three-banded Italians. I am doing my annual requeening and can furnish select tested queens one and two years old, at \$2.00 each. Also can furnish untested queens at \$1.50 each; \$8.00 for 6; \$15.00 per dozen. All orders filled promptly.

John Hutchinson, Fife Lake, R. D. No. 2, Mich.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.

H. G. Quirin, Bellevue, Ohio.

BEES BY THE POUND.—Also **QUEENS.** Booking orders now. **FREE** circulars give details. See larger ad elsewhere. **Nueces County Apiaries,** Callallen, Texas, E. B. Ault, Prop.

GOLDENS THAT ARE TRUE TO NAME. Untested queens, each, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00.
Garden City Apiaries, San Jose, Calif.

MISCELLANEOUS.

Write for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. **The Dero Taylor Co.,** Newark, N. Y.

Guinea Pigs. Young stock, for sale, females \$1.50; males \$1.00. **Pleasant Hill Caviary,** 1629 E. Florida St., Springfield, Mo.

PRINTING SPECIAL.—100 letterheads, 100 billheads, 100 cards, 100 envelopes, \$1.90. Send for samples. **Hawthorne Press,** Yonkers, N. Y.

FOR SALE.—California Wonder Corn for seed. A new white dent. Has averaged as high as six good ears per stalk. The greatest yields of any corn known. Order now. Price, 10 lbs., \$3.50.
James McKee, Riverside, Calif.

HELP WANTED

WANTED.—Man for comb-honey production, 12 months' work. State wages expected and experience. **Sunnyside Apiaries,** Fromberg, Mont.

SITUATIONS WANTED

WANTED.—Experienced farmer and beekeeper wants a position in an apiary in the state of Florida, around the first of December.

Chas. Ramiz, Manchester, R. D. No. 2, N. H.

Young man of thoro experience desires a position as queen-breeder, or general beekeeper in one of the Western States for the season of 1920. Reference as to character and ability.

M. S. Fortune, Scottsville, Va.

WANTED—TO PURCHASE COLORADO Section and Bulk Comb Honey

direct from producers in car lots and less than car lots. Please let us know what you have and submit sample, full description as to weight, and your lowest price to

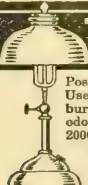
J. E. HARRIS, MORRISTOWN, TENN.

or our western representative, **Mr. R. B. McCuffin,** 1165 Emerson St., Denver, Colo.

Leininger's Strain of Italians

have stood the test for 35 years. We will offer queens for sale from this famous strain, beginning June, as follows: One untested queen, \$1.50; 6, \$8.00. One tested queen, \$2.00; 6, \$11.00. Select breeders, \$15.00 each.

Fred Leininger & Son, Delphos, O.



The BEST LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog.

AGENTS WANTED EVERYWHERE
THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

FLOUR IS HIGH

Why not live better and save money, too?
Grind your wheat into Best Whole Wheat or Graham Flour. Your doctor knows how healthy these are. Make the **BEST** Corn Meal, the old-fashioned sort you can't buy at any price nowadays.

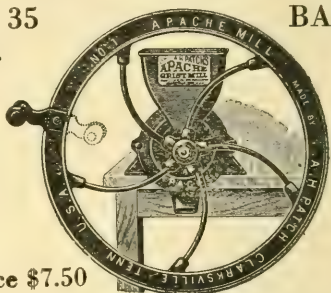
Do all sorts of fine and coarse grinding with an

APACHE MILL

**Wt. 35
lbs.**

BALL

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Price \$7.50

This Mill Makes Best Corn Meal, Graham Flour, Rye Flour, Chops, Hominy, Cracks Peas, Grinds Coffee, Spices, etc. Perfect adjustment for coarse or fine work. Will send Mill prepaid by Express **\$7.50**

APACHE GRIST MILL—Largest capacity, fastest grinding, easiest turning handmill. Does more, lasts longer.

A. H. Patch, Inc., Clarksville, Tenn.
The Blackhawk Corn Sheller Inventor

Invented 1885

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**Friction-Top Cans and
Pails**

**Five-gallon Square Cans
with Screw or Solder Cap**

**Packers' Cans
Open Top or Hole and Cap Styles**

**Wax Sealing Preserving
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*Unexcelled manufacturing and
shipping facilities.*

W. W. Boyer & Co., Inc.
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Distributors Root's Goods FOR PENNSYLVANIA

Send for new special catalog featuring the "Simplex"
Super, and giving instructions to beginners

Prothero, Bailey & Goodwin DUBOIS PA.

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From 1897 to 1919 the Northeastern
Branch of The A. I. Root Company

Prompt and Efficient Service **BECAUSE—**Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway.

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TUPELO HONEY

Never granulates.
Bright lemon color.
Of the highest quality.
For sale in any quantity.

J. J. WILDER, . WAYCROSS, GA.

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A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog.

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20 per cent Discount

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"Special Crops" A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. \$1.00 per year. Sample copy 10c. Address

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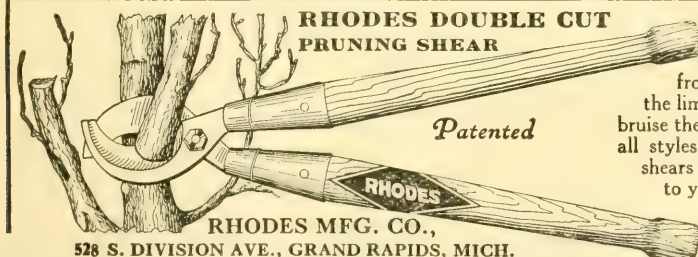
Dont Send a Penny

These Len-Mort Work and Outdoor Shoes are such wonderful value that we will gladly send them to you at once, **no money down**. You will find them so well-made and so stylish and such a big money saving bargain that you will surely keep them. No need to pay higher prices when you can buy direct from us. Why pay \$6 and \$7 for shoes not near so good?

Great Shoe Offer



This shoe is built to meet the demand of an outdoor city workers' shoe as well as for the modern farmer. Built on stylish lace Blucher last. Special tanning process makes the leather proof against the acids in milk, manure, soil, gasoline, etc. They outwear three ordinary pairs of shoes. Very flexible, soft and easy on the feet. Made by a special process which leaves all the "life" in the leather and gives it a wonderful wear-resisting quality. Double leather soles and heels. Dirt and water-proof tongue. Heavy chrome leather tops. Just slip them on and see if they are not the most comfortable, easiest, most wonderful shoes you ever wore. Pay only **\$4.17** for shoes on arrival. If, after careful examination you don't find the mail you expect, send them back and we will return your money. Order by No. A18025, **SEND** your name and address, and be sure to state size you want. You be judge of quality, style and value. Keep them only if satisfactory in every way.
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RHODES DOUBLE CUT PRUNING SHEAR

Patented

RHODES MFG. CO.,

528 S. DIXON AVE., GRAND RAPIDS, MICH.

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door.

Write for circular and prices.

Bees Queens Beekeepers' Supplies

Prompt Service
Fair Dealing

The Penn Company
Penn, Miss.

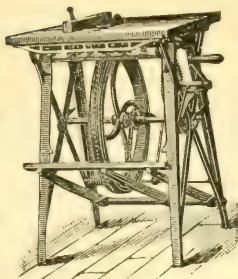
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

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ROCKFORD, ILLINOIS



MOORE'S STRAIN OF ITALIANS

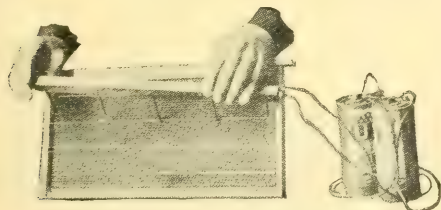
Noted for Honey Gathering,
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Untested queens - - - \$1.50; 6, \$8.00; 12, \$15.00
Select Untested - - - 2.00; 6, 10.00; 12, 19.00
Safe arrival and satisfaction guaranteed.

I intended to run my apiaries for honey this year; but so many of my customers say that they must have "Moore" queens, I am devoting part of my home apiary to queen-rearing.

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Electric Imbedder



Price without Batteries, \$1.25

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market. For sale by all bee supply dealers.

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GET YOUR CHURN FREE



25,000 Leader Churns have removed the dread of churning. They make more and better butter; 7,000 testimonials; A. N. Hollis, says: "Churning was a burden until we got the Leader. Now the children cry to churn. We can churn in 3 or 4 minutes." Steel frame—light weight—compact—easily cleaned.

Lasts a Lifetime

Sold under two plans. Simply order churn; then at end of 30 days, remit the price, or take orders from your friends and let your commissions pay theirs and secure your Leader Churn Free.

for your churn, thus securing your Leader Churn Free.
3 Gal. \$5.50 5 Gal. \$6.00 8 Gal. \$6.50
Churns 1-2 Gallons Churns 3 Gallons Churns 4 Gallons

Send No Money Order direct from this adv. checking size of Churn wanted. You pay express charge only. AGENTS WANTED—take trial order; no money needed.

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CHURNS IN 3 MINUTES

Beeswax Wanted

In big and small shipments to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1918. We are paying higher prices than ever for wax. - We work wax for cash or on shares.

Root's Bee-supplies

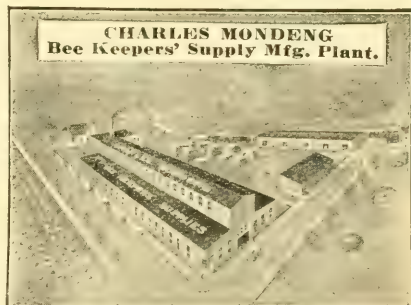
Big stock, wholesale and retail. - Big catalog free.

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The Comb-foundation Specialist
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Established 1899

\$30,000 WORTH OF Bee Supplies



All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

Will Take Beeswax in Trade at
Highest Market Price.

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Complete Line of
Beekeepers' Supplies

Catalog on Request

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BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1919 catalog send for one at once.

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BEEKEEPER'S SUPPLIES

Every Thing Required for Practical Beekeeping

Order your supplies NOW and save money by taking advantage of the early order cash discounts. We are well prepared to take care of your business; send us your inquiries and we will be pleased to quote you our prices. Send us your name and address and we will mail you one of our new 1920 catalogues when ready.

AUGUST LOTZ COMPANY . . . BOYD, WISCONSIN

**BANKING
BY MAIL
AT 4%**

BUILD up a surplus account with us BY MAIL,—
add a definite amount at regular intervals. Deposits may be safely sent in the form of check, draft, money order or the currency by registered mail.

We invite small or large deposits and pay FOUR PER CENT COMPOUND INTEREST.

THE SAVINGS DEPOSIT BANK CO.

**A.T. SPITZER, Pres.
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Your Duty—Do You Know It?

It is to get ready for the coming season and be ready for the first honey flow. This will net you profits. Prepare your bees for a big year and take no chances. Get the best to do with and have the best results.

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We get the beekeepers ready for the big season. Supply them with the best of everything with which to work and get the best results. Send us a list of your requirements for quotation. TO DELAY MEANS LOSS TO YOU. "Falcon" service cannot be beat. Catalog and Simplified Beekeeping on request.

W. T. Falconer Manufacturing Company

Falconer, New York

"where the best bee hives come from."

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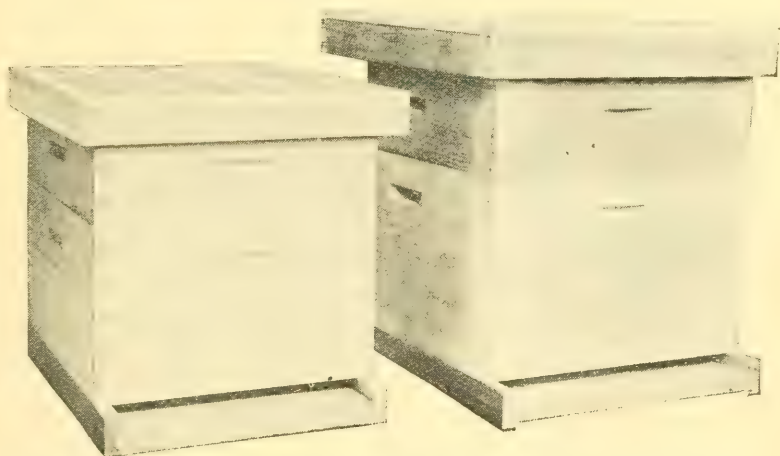
THE LARGE HIVE

More and more beekeepers are realizing the value of a hive with large brood-chamber for extracted-honey production.

We have, ourselves, for years, used and advocated a large hive. The original Dadant Hive, however, did not win favor with the majority of beekeepers since its large telescope cover and complex construction made it very expensive; and, moreover, it did not lend itself readily to the use of Langstroth equipment.

It is with the object of combining all the advantages of the large hive with economy of construction and availability of existing equipment that we have evolved and now offer

The Modified Dadant Hive



The regular ten-frame Langstroth and Modified Dadant hive compared. The latter has a forty per cent larger area in the brood-chamber yet costs approximately only 25 per cent more.

Its Advantages

- (1) A deep frame to conform to the egg-laying circle of the queen.
- (2) A large compact brood-chamber in one story capable of accommodating the most prolific queen.
- (3) Ample ventilation by means of $1\frac{1}{2}$ -inch spacing of frames.
- (4) Excellent for wintering on account of large brood-chamber and large clustering space.
- (5) Swarm control.
- (6) Allows the use of standard Langstroth supers or bodies for storage room.

Its Construction

Eleven frames Langstroth length and Quinby depth, spaced $1\frac{1}{2}$ inches from center to center. Regular style metal cover, regular style bottom-board. Dovetailed body. Hoffman frames. Six and one-quarter inch frames in shallow super.

Write Today for Descriptive Booklet and Prices.

DADANT & SONS, HAMILTON, ILL.

WHY

NOT HAVE THE BEST?

NOT SAVE FREIGHT?

NOT ORDER NOW?

For nothing less than the best pays. Our goods are guaranteed to give satisfaction. And remember we discount orders this month, so that you can not afford to miss the opportunity to stock up the depleted stock at reduced cost, especially as we are so well located in one of the best shipping centers in the West. Our Traffic Department can save you money on your freight, and valuable time also.

In short, why not take advantage of the KRETCHMER service? Your orders promptly shipped, your beekeeping made profitable and successful in all its complicated phases because you use us.



And once you have tried KRETCHMER'S there will be no "Why."

KRETCHMER MFG. CO.,
Council Bluffs, Iowa.

If You're a Beekeeper

I can furnish you on short notice, top-grade White Pine Standard Dovetailed Hives, Supers, Covers, Bottoms, Hoffman Frames, and all Supplies including Comb-honey Shipping Cases, glass and tin Honey Packages, Smokers, Extractors, and Foundation.

For seventeen years I was manager of the Minnesota Bee Supply Co., in Minneapolis—but since spring, 1918, have been in the business under my own name, at the same location. My prices invariably are based on the cost of manufacture, plus a reasonable margin of profit—and no more.

Now, near the close of a very gratifying season—I am somewhat overstocked on Hives, Supers, Frames, and Sections. All standard goods—quality and finish guaranteed. Am quoting SPECIAL PRICES to dispose of this stock before Inventory—affording you the opportunity to secure your season's Supplies at a liberal saving.

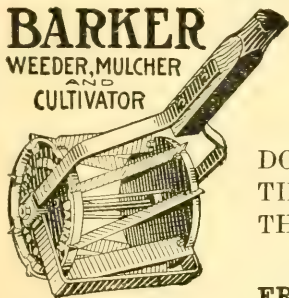
Don't lose out by delay—write NOW for my special October Price List — then use it.

P. J. DOLL BEE SUPPLY CO.

Nicollet Island

Minneapolis, Minn.

BARKER
WEEDER, MULCHER
AND
CULTIVATOR



Weeds and Mulches In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

**BARKER
MFG. CO.
Dept. 10**

DAVID CITY, NEB.

Gentlemen.— Send me postpaid your free book and Factory-to-User Offer.

BARKER MANUFACTURING CO.

Dept. 10

David City, Nebraska

Name _____

State _____

Town _____

R. R. No. _____ Box _____

THE FOREHAND FEEDER

This is the greatest invention along this line the bee-world has ever known. It is a feeder that it took ten years to perfect. It has been in use for twenty-seven years. It is a success for

1. There is no cold feeder in the brood-nest or on the outside of the hive to start robbing.
2. It does not drown or freeze the bees.
3. It has two uses. This cuts the cost in half.
4. It is a convenient time saver. You can feed at any time.
5. It is not an expensive feeder.
6. It saves labor, feed and bees.
7. It is a **GOOD FEEDER**.

BEE SUPPLIES.

We handle everything the beekeeper needs. Write at once and get the 35% saving on the greater part of our supplies. Catalog free.

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We have a modern printing plant especially equipped to supply the requirements of the beekeepers. Our long experience and up-to-date equipment enables us to turn out first-class printing promptly. Write us for further information and prices.

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Forehand's Three Bands need no recommendation. For over a quarter of a century they have been pleasing the best beekeepers

thruout the world. They are the kind that are *surpassed by none but superior to many*. They are thrifty, hardy, gentle, and beautiful. Write for special queen circular. Get your order in now before the rush.

POUND BEES.

Six thousands pounds is our capacity for the season of 1920. We are booking orders now. After we have booked orders for this amount no more will be received. Get your order in now. Write for prices and information.

For twenty-seven years we have been in the bee business on an extensive scale. We know the beekeepers' needs and can fill them to your satisfaction, it matters not what you want.

W. J. Forehand & Sons "The Bee Men" **Ft. Deposit, Ala.**

HONEY WANTED HONEY

Write us what you have to offer in extracted or comb. If comb, state how packed, graded, and quantity. If extracted, state how put up, mail sample, and quote your lowest price. We will buy unlimited quantities if price and quality are right.

C. H. W. WEBER & COMPANY
2146 CENTRAL AVENUE CINCINNATI, OHIO

BE EARLY WITH YOUR ORDER

Order now, before the busy season commences. We can fill your order with greater promptness, give it more attention, and you will receive 4% early order discount.

Be prepared for next year to secure all the honey you can possibly get. Send us a list of goods you need and we will be glad to quote you.

Look over your stock and see what you need. We can furnish it. Try us and you will order again. If you haven't a copy of our catalog send for one today.

We have just the service you have always been looking for. Prompt, accurate, and reasonable. Send us your order and save in time and freight charges.

F. A. Salisbury
1631 West Genesee Street
Syracuse, N. Y.

WEIS FIBRE Honey Containers

A neat, clean, leak-proof package for extracted honey. They are inexpensive and the best substitute for glass. Sizes are from 6 ozs. to 5 lbs. Your name and address printed on them at a small additional charge. Send for descriptive price list.

General Agents in Michigan
for Root's Goods.

The early order discount for
October is five per cent on
goods for next year's use.

M. H. Hunt & Son

510 North Cedar St.
Lansing, Mich.

Ontario Bred Italian Queens

NOW IS THE TIME

TO REPLACE THOSE OLD BLACK QUEENS

with young ones of a gentle strain. Great honey gatherers and resistant to European Foul Brood.

Select Untested - \$1.25 each; \$13.00 dozen

Untested - - - \$1.00 each; \$10.00 dozen

RUMFORD & FRETZ -:- -:- FOREST, ONTARIO

BEES BY THE POUND

Booking orders now with 10 per cent down, balance just before shipping. For full remittance with orders we offer the following DISCOUNTS: 5 per cent for October; 4 per cent for November; 3 per cent for December, and 2 per cent for January. We have shipped for several seasons thousands of pounds all over the United States and Canada. Guarantee shipment to be made on time—FREE circular explains; also gives prices on bees by parcel post; nuclei, etc.

PRICES F. O. B. HERE BY EXPRESS

QUEENS

1-lb. pkg. bees,	\$2.40;	25 or more,	\$2.16	Untested,	\$1.50 each;	25 or more,	\$1.35
2-lb. " "	4.25		3.83	Tested,	2.50	" "	2.25
3-lb. " "	6.25		5.62	Select Tested,	\$3.00 each.		

Add price of queen wanted when ordering bees.

NUECES COUNTY APIARIES -:- CALLEN, TEXAS

E. B. AULT, Prop.

PREPARE FOR 1920 NOW

And take advantage of our early-order discounts. You can save money by writing us, for the following reasons:

We have a complete stock of all kinds of Standard Lewis Beehives, Sections, Dadant's Foundation, General Bee Supplies, Wax, Honey, and Honey-containers at Newark, New York.

We have the advantage of being located in a 1st-class R. R. center.

We have a modern up-to-date wax-rendering plant in operation.

Our new honey-packing department is in operation.

Come and pay our plant a visit or write us.

We are sure it will prove profitable to you.

The Deroy Taylor Co., -:- Newark, Wayne Co., New York



Start a Year, NOW The Youth's Companion

For those families that live together, work together, play and entertain together there is nothing like the Youth's Companion. It creates an atmosphere of high purpose and unselfishness and inspires loyalty to the family and the nation. It always entertains but never panders to the trashy or worthless. Isn't that the kind of reading you wish to provide for your family? The volume for 1920 will contain several splendid serials, 200 other stories, the department pages, the Doctor's weekly article, etc., etc.

Start a Year of the Youth's Companion NOW
For Your Family's Sake

Every New Subscriber who cuts out and sends this coupon with the price of the offer chosen will at once begin to receive the Free issues.

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—52 Splendid Weekly Issues
All the remaining 1919 Weekly Issues;
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All for \$2.50

OFFER A

THE YOUTH'S COMPANION - \$2.50
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GLN

TO ANY SUBSCRIBER requesting it and adding 10c. to the subscription price we will include *The Companion Victory Atlas*, 32 pages in colors, showing the Boundaries of Great and Small Nations as defined by the Peace of Versailles.

THE YOUTH'S COMPANION, BOSTON, MASS.

A GREAT NEW BOOK

- for -

BEEKEEPERS

The American beekeeper has long been in need of a thorough knowledge of the honey plants of this country.

To know the sources of honey supply and the location of such sources, is indispensable to beekeeping success.

The American beekeeper is at last going to be supplied with this knowledge by the highest American authority on the subject of honey plants, Mr. John H. Lovell, scientist, author, and beekeeper.

The Honey Plants of North America, North of Mexico, and Guide to the Best Locations for Beekeeping in the United States

Is the subject of the book which Mr. Lovell has been preparing by a life-long study and now about to be printed by us as his publishers and collaborators.

This new book will prove the most important contribution made to American beekeeping lore in years—literally filling “a long-felt want.”

No brief description can possibly tell of the beekeeping ground covered by the author. Among the many subjects treated, will be found chapters on “The Influence of Environment on the Secretion of Nectar,” “Plants Valuable for Pollen Only,” “Honeydew,” “Plants of Little Value to Bee Culture.”

One entire part of the book will be given over to a discussion of “Nectar—Its Secretion, Protection and Distribution.” Another part will give the fullest and most finely illustrated description of North American honey plants ever printed.

Still another part (and perhaps the most important) will deal with the honey plants of different sections of the country and furnish a guide to the best locations for beekeeping.

All this big and valuable work for beekeepers has been done with Mr. Lovell's widely known scientific accuracy; but technical terms have been avoided, and the language used is that of the common beekeeper.

We congratulate the beekeepers of America upon the prospect of having the new aid and encouragement that this great new book will give to our beekeeping.

We are already at work upon its publication, and trust that it will be off the press early in 1920.

THE A. I. ROOT COMPANY
Medina, Ohio

The Bees Won't Wait

When the honey flow is on, the bees won't wait. They become imbued with the spirit of opportunity. Then the hives must be ready; the supers piled up. Every day's delay means a big loss in the honey crop. There is no time then to wait for bee supplies. "Forewarned is forearmed;" buy supplies this winter. You can get your season's goods at lower prices now.

**WE ALLOW A FOUR PER CENT DISCOUNT
ON CASH ORDERS IN NOVEMBER.**

"How" Booklets

There are two booklets, at 5c each, which every beekeeper should read in planning his 1920 profits. The titles are: "How to Winter Bees Outdoors" and "How to Use Comb Foundation." These are part of the Lewis Pocket Library of 11 booklets for 55 cents.

Look
For



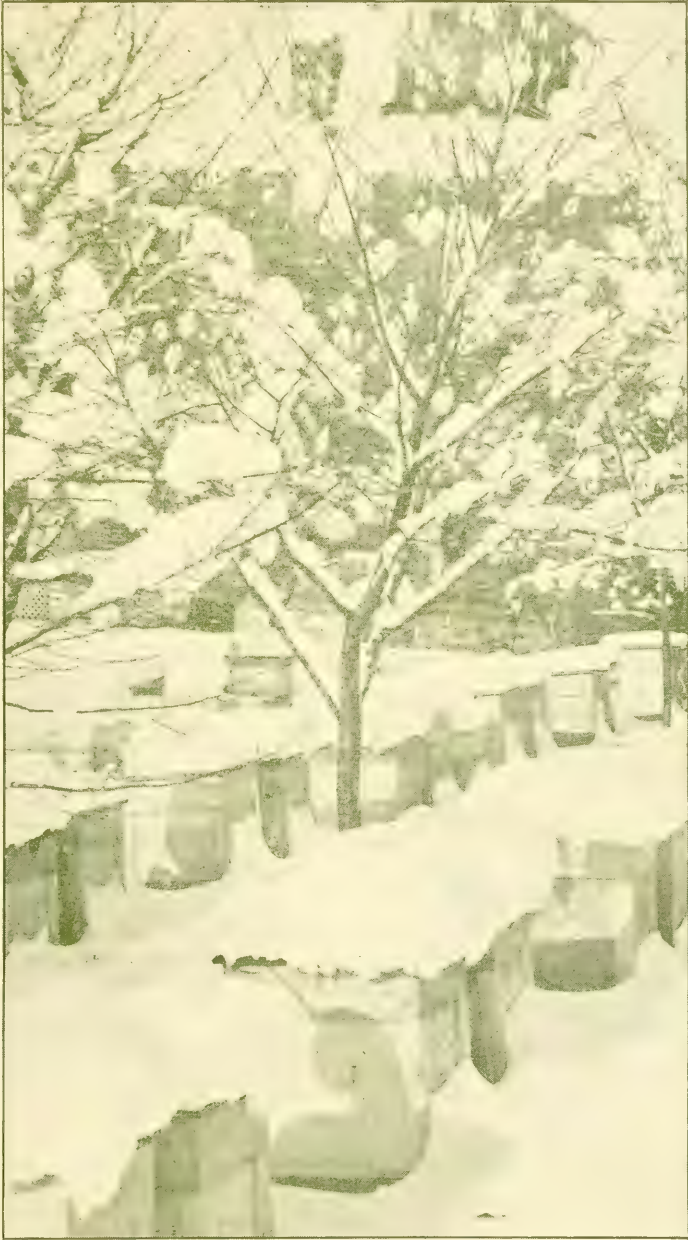
This
Mark

Have we your name for our 1920 catalog? If not, send it in to us by return mail. There is a distributor near your apiary.

G. B. LEWIS CO., WATERTOWN, WIS.
Makers of Beware

LIBRARY

Cleanings in Bee Culture



Vol. XLVII

DECEMBER 1919

No. 12

We are always in the market for HONEY and BEESWAX.
Do not sell until you have seen us.
We will pay you spot cash for any thing you sell us.
Get our prices on cans and cases.

Los Angeles Honey Co.

633 Central Bldg., Sixth and Main Sts.

Los Angeles, California

Telephones: Home 10419, Main 5606

BEEKEEPER'S SUPPLIES

Every Thing Required for Practical Beekeeping

Order your supplies NOW and save money by taking advantage of the early order cash discounts. We are well prepared to take care of your business; send us your inquiries and we will be pleased to quote you our prices.
Send us your name and address and we will mail you one of our new 1920 catalogues when ready.

AUGUST LOTZ COMPANY . . . BOYD, WISCONSIN

Root Service

WE ARE CLOSING THE FIRST SEASON IN

Our New Factory.

BECAUSE OF A LATE START IN GETTING MACHINERY SET FOR OPERATION OUR SERVICE EARLY THIS YEAR WAS NOT UP TO NORMAL.

We are taking advantage of the slack season to make up a surplus stock of standard goods and will be in a position to give prompt service in the future from both offices.

We believe our factory is filling a need for a higher standard of quality in hives, frames, and other beekeepers' supplies in Pacific Coast territory and merits your support.

Our company was incorporated as a California corporation last November, and there are still some shares available for investment.

Let us hear from you whether you are interested in selling honey or beeswax, or in buying supplies, or in making a safe investment.

The A. I. Root Co.
of California

1824 E. 15th St.
LOS ANGELES

52-54 Main St.
SAN FRANCISCO

"Griggs Saves You Freight"

TOLEDO

How about supplies for next season's use?
Why not take advantage of the early order discounts!

Second-hand 60-lb. Cans

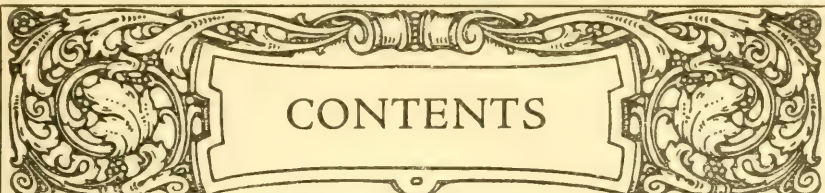
We have a carload or more in cases of two cans, good condition, at prices worth your attention.

Honey--Honey--Honey

We are in the market for large quantities of all kinds of white honey. Mail samples and state price asked in first letter.

"Griggs Saves You Freight"

GRIGGS BROTHERS CO.
Dept. No. 25 Toledo, Ohio



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Cincinnati, Ohio

Superior Foundation Again Excels

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Ogden, Utah.

Gladys, Va., R. F. D. No. 2.
Oct. 10th, 1919.

Dear Sirs:—When I received your Superior Foundation the clover flow was at its best. After removing a couple of frames of brood from the center of my best colony I inserted a frame of Superior Foundation and a frame of the other make. Upon examining the same colony again in the evening, about six hours later, I found that the bees had drawn out your Superior Foundation about one-eighth of an inch in the center, while the other foundation was untouched. When I next opened the hive about two days later I found that the frame of Superior Foundation had been fully drawn and some cells along the top bar had been sealed, while the frame of other foundation had some honey, but none sealed. When the queen laid in the frame containing your foundation it made the most beautiful brood frame of the two. I made several other tests with similar results, and consider them fair tests, as the other foundation was the same weight and freshness, being purchased this spring. I do not hesitate to say your Superior Foundation is the best foundation I have ever seen. I am

Yours for business,

B. E. JOHNSON.

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HONEY MARKETS

The honey market remains in a very strong position, and prices seem likely to advance before going lower on account of the very severe sugar shortage in the eastern part of the country.

HONEY CROP IN THE UNITED STATES FOR 1919.

The Bureau of Crop Estimates, U. S. Department of Agriculture, has issued its report on honey production for 1919. Fifty pounds is given as the average yield per colony in the United States this year; in 1918, it was 45; from 1913 to 1917, the average was 41.60. Extracted honey made up 60.1 per cent of the total crop this year, while in 1918 it was 58.3 per cent; comb was 30.5 per cent of this year's crop, and in 1918 it was 31 per cent; bulk honey was 9.4 per cent of this year's crop, while in 1918 it was 10.7 per cent. (It is a surprising report that shows a decrease in percentage of comb honey produced this year as compared with last year's comb-honey crop.) Of the 1919 crop, 34.3 per cent was disposed of to outside markets; in 1918, 32.9 per cent was disposed of to outside markets, and in 1917 this percentage was 28.9. California is reported first of the States in honey production, yielding 15 per cent of the total production in the United States; Texas is second, yielding seven per cent; Iowa third, with six per cent; Wisconsin, Illinois, New York, and Michigan are each reported as yielding 4 per cent of the total; while Pennsylvania, Georgia, Florida, Ohio, Indiana, Minnesota, Missouri, and Colorado are each credited with yielding 3 per cent of the total. The total amount of honey produced in the country in 1919 is not estimated. The fact that the average yield per colony is given as 5 lbs. more this year than last would mean a largely increased production—if the number of colonies in the country is as large as in 1918.

U. S. Government Market Reports.

HONEY ARRIVALS NOV. 1-14.

Medina, O.—360 pounds from Iowa, 61,480 from Idaho, 2,135 from Ohio, 1,400 from New York, 30,700 from Colorado. Previously unreported, arrived Oct. 15-31, 25,252 pounds from Ohio, 40 from Pennsylvania, 82,120 from California, 11,366 from Vermont, 35,000 from Arizona, 6,443 from Florida, 72,800 from Colorado, 116,095 from Wyoming.

SHIPPING POINT INFORMATION—NOV. 14.

Los Angeles, Calif.—Demand and movement good, market steady, little change in prices. Supplies of cheaper grades cleaning up. Carloads f. o. b. usual terms: per lb., white orange blossom mostly 19c; white sage mostly 20c, extra light amber sage 19c, light amber sage 18-18½c, light amber alfalfa, supplies practically exhausted 16c. Beeswax: demand and movement moderate, in l. c. lots 40c per lb.

San Francisco, Calif.—Supplies light, demand and movement slow, too few sales to establish market.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

(The prices quoted in this report, unless otherwise stated, represent the prices at which the "wholesale carlot receivers" sell to the "jobbers." Arrivals include receipts during preceding five days. Prices represent current quotations.)

Boston.—Supplies light, demand moderate, market steady. Sales to grocers in small lots. Comb, Vermont and New York, in cases containing 20-24 sections, 32-35c per section. Extracted and beeswax, no sales reported.

Chicago.—No carlot arrivals, demand and movement good, market steady. Sales to jobbers: Extracted, per lb., white alfalfa 20-21c, light amber alfalfa 17-18½c. Comb, 24-section cases, No. 1, \$7.00-7.50. Beeswax: no carlot arrivals, supplies moderate, demand and movement good, market steady. Light, 50c per lb., dark, 46-48c per lb.

Cincinnati.—One car imported, 1,800 pounds from Iowa, 5,200 from Alabama, 2,200 from Florida arrived. Demand and movement moderate, market steady. Sales to jobbers: Extracted, Western white clover and white sage 22-23c per lb. Beeswax: Supplies light, demand good, market firm. Average yellow mostly 42-45c per lb.

Kansas City.—Approximately 25 cases arrived. Supplies liberal, demand and movement moderate, market steady. Sales to jobbers: Comb, 24-section

flat cases, Missouri, No. 1, light \$8.00, Colorado, fancy \$7.50.

Minneapolis.—Supplies liberal, demand and movement limited, market steady. Sales direct to retailers: Comb, Western fancy light, 24-section cases \$7.50, few \$7.75. Extracted, 60-lb. cans 20-22c per lb.

NEW YORK.—Two cars California, one car New York, one car Pennsylvania, 5,880 pounds New York arrived. Imports and exports unreported. Demand and movement slow, market steady. Sales to jobbers: Extracted, per lb., California, white orange 23-24c, light amber alfalfa 20-22c, light amber sage 22c, New York white clover 21-23c. Per gallon, Porto Rican \$1.40-1.50. Comb, New York 24-section cases, fancy, per section 34-36c, No. 1 30-32c, No. 2 27-29c. Beeswax: Demand and movement moderate, market steady. Per lb., light 44-45c, dark 43-44c.

Philadelphia.—59,760 pounds from Wyoming, 3960 from New York, 6,442 pounds from Florida, 1,575 gallons from Cuba arrived. Demand good, market firm. Sales to jobbers: Extracted, per gallon, Cuban amber \$1.61, light amber \$1.63; per lb. Florida extra light amber 23c, amber 21c. Purchases by wholesalers f. o. b. Philadelphia, per lb., New York white clover 17½c, Florida light amber 19c.

St. Louis.—Supplies light, demand and movement slow, market steady. Sales to jobbers: Extracted, Southern amber per lb. in cans 15-16c, in barrels 14-15c. Comb, practically no supplies on market, no sales reported. Beeswax, prime, per lb. 40c.

St. Paul.—Supplies liberal, demand and movement limited, market steady. Sales direct to retailers: Comb, Western fancy light, 24-section cases \$7.50-7.75. Extracted, very few sales, 60-lb. cans 24-25c per lb.

Denver.—Approximately 37,000 lbs. extracted, 200 cases comb arrived. Supplies moderate, demand and movement moderate, market steady, little change in prices. Sales to jobbers: Comb, Colorado, white, 24-section case, No. 1, \$6.75, No. 2, \$6.30. Extracted, white, 18½-19c, light amber 17½-18c. Beeswax: Light, 38c in cash, 40c in trade, price to beekeepers.

EXPORT DISTRIBUTION OF HONEY, OCT. 1-15.

Total, 343,357 pounds; to Austria-Hungary, 12,000 pounds; to Belgium, 170,000; to Finland, 12,600; to France, 28,300; to Italy, 22,800; to Netherlands, 61,900; to Norway, 5,000; to England, 30,176; to all other countries, 2,581 pounds.

George Livingston,
Acting Chief of Bureau.

Quotations From Producers.

The following are the opinions and quotations of actual honey-producers thruout the country received during the last few days:

ARIZONA.—Wholesale price producers are receiving: Extracted 14½-15c per lb. car lots; comb 25 to 30c local—no shipping. Market is rising, with good indications for a continued strong market. Sugar sales rationed. Shortage no doubt affects honey market, hard to say to what extent. Mainly in bakeries, bottling works, etc. About 10 per cent of the crop is already sold. There is practically no sugar fed here. In fact, very little feeding at all. Fall stores are left in the hive.—W. I. Lively.

BRITISH COLUMBIA.—Wholesale price producers are receiving: Extracted 28c; comb 32c. Demand has eased off for the time being. Sugar shortage not severe enough to affect the honey market. About 65 per cent of the crop is already sold? As a general rule, colonies have sufficient natural stores to winter on.—W. J. Sheppard.

CALIFORNIA.—Wholesale price producers are receiving: for extracted 15-16c, for light amber, 13c for amber; no comb. The market seems to be strengthening up right along. Sugar shortage not severe enough to affect the honey market noticeably. About 25 per cent of the crop is already sold.

I don't believe the sugar shortage has left the colonies short of stores in this section. Individually, I never let my bees get in the shape where I have to feed sugar.—W. Gear.

CALIFORNIA.—Wholesale price producers are receiving: Extracted 20-21c for white, 15-18c for amber; no comb for sale, not for years have we

had such a shortage in comb honey. Altho the bulk of the little honey that was produced is out of the producers' hands, the prices set by the retailer are almost prohibitive—consequently slow sales. The late flows that many apiaries usually fill up from did not materialize this season, with a few exceptions. Reports say that many colonies are gathering sufficient to stimulate them to breed up a great amount of their stores.—M. H. Mendleson.

CALIFORNIA.—Buyers are very scarce; no offers that I know of. Market is slow. The Exchange has most of the honey and is holding for 19¢-20¢ for white, 15-16¢ for light amber. Condition of colonies in a majority of the apiaries is much below normal. Colonies have plenty of good stores only in exceptional cases.—L. L. Andrews.

COLORADO.—Wholesale price producers are receiving: Extracted 17½-18¢; comb \$5.50-\$6.00. Market is quiet. There are a number of sugar factories in Colorado, on account of which we have probably not been limited as much as Eastern States. We can still buy sugar in 100-pound lots. About 75 per cent of the crop is already sold. We seldom have to feed in fall. Practically all colonies in this locality have plenty of natural stores.—J. A. Green.

FLORIDA.—Wholesale price producers are receiving: Extracted \$2.00 per gallon f. o. b. shipping point; comb 25-30¢, 12- to 14-oz. sections. Market is almost bare. Sugar shortage severe enough to affect the honey market as beekeepers are out and have not had any sugar for some time. Prospects poor for any sugar soon, and where there was any it was 17 to 24¢. All the crop is already sold, and no honey that I know of is left. Sugar shortage has left the colonies short of stores. There will be 25 to 50 per cent of bees lost by no attention by lots of the beekeepers. 10 per cent bees lost by the honey dearth.—C. H. Clute.

FLORIDA.—Wholesale price producers are receiving: Extracted 14¢ f. o. b.; comb—none to sell. Wholesale market dull, but a very good local market. Sugar shortage is severe enough to affect the honey market. I am having an unusual demand for honey in 5-lb. pails and gallon lots. About 90 per cent of the crop is already sold. Most people do not usually depend on feeding bees sugar. In many localities bees will be getting honey early in January from pennyroyal.—Ward Lanekin.

IDAHIO.—Wholesale price producers are receiving: Extracted, 16-20¢, but little at 16¢; comb, one car 11 oz. \$6.25. Market is poor, but offers increasing. Sugar shortage not materially affecting the market. About 30 per cent of the comb crop is already sold and 5 per cent of the extracted. Sugar shortage has not left the colonies short of stores.—E. F. Atwater.

ILLINOIS.—Wholesale price producers are receiving: Extracted 23¢, 25¢ retail; comb, No. 1 30¢, No. 2 25¢ per section. Since last report honey has been moving quite freely, and as soon as the weather cools look for the honey market to pick up. The sugar shortage does not affect Illinois. We were fortunate enough to have a fall flow that has put the bees in good condition for winter. About 10 per cent of the crop is already sold?—A. L. Kildow.

INDIANA.—No sales except to retailers and consumers. Market is good. Sugar shortage not severe enough to affect the honey market noticeably. About 50 per cent of the crop is already sold. Sugar shortage has not left the colonies short of stores in Porter county. Owing to cool nights in September, when bees were storing, most of the fall honey was deposited in the brood-chambers, leaving them well supplied.—E. S. Miller.

MARYLAND.—Wholesale price producers are receiving: Extracted 22-24¢; comb 24-28¢. Market very good on account of sugar shortage. Over 50 per cent of crop sold. Most colonies are not short of stores because of good fall flow. Have not been able to obtain sugar so far for those that are short.—S. G. Crocker, Jr.

MASSACHUSETTS.—No honey for sale at wholesale. Market is rather quiet. Sugar shortage not yet severe enough to affect the honey market. About 75 per cent of the crop is already sold. We have secured enough sugar to put the colonies in good condition except in cases where beekeepers did not wake up soon enough to the fact that the stores were short, and so feed the bees.—O. M. Smith.

MICHIGAN.—Extracted honey is being sold by producers all the way from 20-27¢ per pound for the white grades. The bulk of sales seem to be around 24 or 25¢. There is not much comb honey

offered at the present time, but the small amount that is moving is selling at 35¢ per pound to the producers. The market is only moderately active. At the present time the sugar shortage does not seem to be affecting the honey market. From recent reports at hand from 77 beekeepers who this year produced 78,000 pounds of extracted and 30,000 comb honey, there remains on their hands yet for sale 17,000 pounds. This is less than 15 per cent of the crop produced. The sugar shortage has resulted in a larger number of colonies going into winter short on stores or being fed at a time that is usually considered too late for best results. There will doubtless be a very heavy mortality here, due to the short crop of honey and the scarcity of sugar.—B. F. Kindig.

MINNESOTA.—Wholesale price producers are receiving: Extracted about 20¢; comb about \$7.50 per case (western honey). Market is slow. Sugar shortage is severe enough to affect the honey market. About 60 per cent of the crop is already sold. Sugar shortage has left the colonies short of stores.—Chas. D. Blaker.

MISSOURI.—Wholesale price producers are receiving: Extracted 25¢; comb \$7.20-\$7.50 paid by commission men and sold to retailer at \$8.00-\$8.40. Very little honey on the market. Sugar shortage severe enough so that we get fancy prices for our honey. Crop is all sold and we are importing honey from other States. The bees have all the honey that they need and some to spare.—J. W. Romberger.

NEBRASKA.—Wholesale price producers are receiving: Extracted 25¢; comb 28¢. Market is good. Sugar shortage was severe enough to affect the honey market up until about 10 days ago. About 75 per cent of the crop is already sold. Sugar shortage has not, to my knowledge, left the colonies short of stores. F. J. Harris.

NEW JERSEY.—Wholesale price producers are receiving: Extracted 20-25¢; comb \$7.00 per case. Market is active. Sugar shortage is severe enough to affect the market. About 90 per cent of the crop is already sold. Sugar shortage has left the colonies short of stores.—Elmer G. Carr.

NEW YORK.—Wholesale price producers are receiving: Extracted 19-21¢ for clover, no dark to quote; comb \$6.00-\$7.50 per case. Comb has dragged a little locally, but all will be sold. Sugar shortage is severe enough to affect the honey market; many consumers buy a 60-lb. can. About 80 per cent of the crop is already sold; no large lots left. Most of the commercial beekeepers were supplied with sugar. Beginners and some not belonging to the association could not be notified when sugar was ordered and were left out. (Join the association.)—F. W. Lesser.

OKLAHOMA.—Honey all sold, both extracted and comb. Market is good. Sugar shortage has affected the honey market very slightly and has left the colonies short of stores to some extent.—C. F. Styles.

ONTARIO.—Wholesale price producers are receiving: Extracted 20-27¢; comb \$3.00-4.00 per dozen. The great majority of beekeepers who have kept bees any length of time have sold almost all their crop. While wholesalers and jobbers are not stocking up very heavily, the honey is moving nicely. With us the sugar shortage has not yet been acute or for more than a few days at any one period. Almost all beekeepers who have tried to secure sugar for feeding purposes were able to do so. All members of the Ontario Beekeepers Association received warning in August. About 80 per cent of the crop is already sold. Sugar shortage has not left the colonies short of stores where the beekeepers heeded the warning of the association sent out early in August.—F. Eric Millen.

VIRGINIA.—Wholesale price producers are receiving: for extracted, 28-35¢; no comb on Richmond market; priced to commission merchants by producer at \$7.50 per case of 24 sections. There is so little honey offered for sale in this State that it can hardly be said that there is a real honey market. A considerable per cent of the honey sold in this State is from other States. Most of the Virginia honey is usually sold in local markets and at very variable prices.—D. B. Owen.

NEW YORK.—Wholesale price producers are receiving: Extracted 20¢ white, have heard no price for dark; comb 25¢ white, nice buckwheat nearly as much. Market is good, I judge. Do not know of any beekeepers holding. Colonies going

into winter quarters not heavy in stores. Many must be fed, owing to short fall crop.—R. H. Elwood.

NEW YORK.—Very little wholesale demand, producers are receiving for extracted 20-28c; comb, 30-35c. Strong local retail market; wholesale buyers not anxious to stock up very heavily. Sugar shortage not severe enough to affect the honey market to any great extent. Crop better than half sold. Had one of the best fall honey flows we ever had, and bees have plenty of stores.—Adams & Myers.

OHIO.—Wholesale price producers are receiving: Extracted 20c; no comb honey on hand. Market is very active. I believe that the sugar shortage helps to stimulate the sale of honey, at least it seems so. Nearly all honey in our locality is sold. All beekeepers in our association have been supplied with sugar, the colonies are going into winter quarters in good condition, and beekeepers are happy.—Fred L. Ginzinger.

PENNSYLVANIA.—Wholesale price producers are receiving: Extracted buckwheat in cans 18c, clover 20c; comb averages 22c per section, counting all grades. Market is very brisk. Sugar shortage severe enough to affect the honey market to a certain extent; altho we always have a good market it is better since sugar got scarce. About 75 per cent of the crop is already sold; this means all the clover and half of the buckwheat. Sugar shortage has not, of any account, left the colonies short of stores, as we have a good late flow, and most bee-men, worthy of the name, put honey down from the supers instead of waiting for sugar they could not get.—Harry W. Beaver.

EAST TEXAS.—Wholesale price producers are receiving: Extracted, 21c; no comb honey. Condition of the market is medium. Sugar shortage not severe enough to affect the honey market. Eighty per cent of the crop is already sold. About 20 per cent of colonies short of stores. Feeding in East Texas was practically unknown until the excessive rains this fall.—T. A. Bowden.

TEXAS.—Wholesale price producers are receiving: Extracted 16c; comb 18c. Market is good. Sugar shortage is severe enough to affect the honey market. Merchants are selling only 25 cents worth to each family each week. About 75 per cent of the crop is already sold. Bees will go into winter with plenty of stores. They are still storing honey from broom weed—no frost yet.—J. N. Valles.

TEXAS, LOWER RIO GRANDE VALLEY.—Wholesale price producers are receiving: Extracted 18c; bulk comb 18c. Market is steady—some stronger. Sugar shortage is severe enough to affect the honey market locally. Many retailers have been wanting honey, but were unable to get all the honey they wanted. Practically all of the crop is already sold. I think that in most parts of the State that the bees stored enough during the fall flow to carry them thru the winter.—A. Lynn Stephenson.

UTAH.—Wholesale price producers are receiving: Extracted 16½-18c; comb 18-22c. Not much demand only in jobbing way. Sugar shortage not severe enough to affect the honey market. But few car lots left unsold. But little need of sugar feeding as late flow put bees in winter condition.—M. A. Gill.

WISCONSIN.—Wholesale price producers are receiving: Extracted 20 to 25c; comb, very little for sale. Market has been very good but somewhat slow just now. Sugar can be secured as needed at this time, and for this reason sale of honey has decreased slightly. About 75 per cent of the crop is already sold. Sugar shortage has left the colonies short of stores to some extent.—H. F. Wilson.

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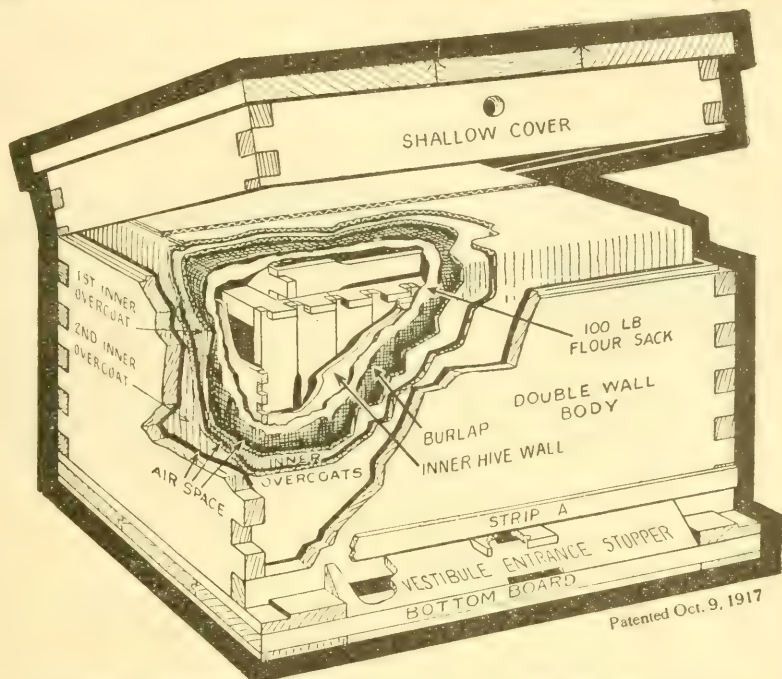
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- 5 lb. Friction top pails, crates of 100
- 5 lb. Friction top pails, crates of 203
- 10 lb. Friction top pails, cases of 6
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GLEANINGS IN BEE CULTURE

DECEMBER, 1919

EDITORIAL

THE EFFORTS on the part of Dr. E. F. Phillips of the Bureau of Entomology,



**Emergency
Winter
Feeding.**

Washington, D. C.; Geo. H. Rea of the same Bureau, with headquarters at Ithaca, N. Y., B. F.

Kindig of East Lansing, Mich., President of the National Beekeepers' Association, and State Apiarist for Michigan; of other State apiarists, and last, but not least, of the American Bee Journal and Gleanings in Bee Culture—all these, have done not a little to supply the beekeepers with the needed sugar in the crisis that faced them last month. Geo. H. Rea was instrumental in distributing over 200,000 pounds of sugar for New York alone at a time when grocers were unable to obtain a single pound. B. F. Kindig and other State apiarists did their fair portion. Gleanings obtained two carloads which we have sold out to the beekeepers on the basis of cost. In spite of all this, many beekeepers were unable to obtain sugar—primarily because they did not take any bee journal or because they were not connected with any beekeepers' society.

There are hundreds of beekeepers all over the country whose bees faced starvation, but who, fortunately, were able to obtain half rations of sugar, or, better still, had a short fall flow of honey that supplied their colonies with winter food, but yet not enough to carry them thru the entire winter. We have had promises from all sides that there would be plenty of sugar available by Jan. 1—certainly by Feb. 1; but if some of these promises hold out no better than they did a year ago the beekeepers will still be calling for sugar.

At the present time we are advised by Geo. H. Rea that the Sugar Equalization Board of New York warns us that consumers are strongly protesting against furnishing sugar to beekeepers, on the allegation that beekeepers are selling honey at 40 cents a pound and yet feed a nine-cent sugar. While this may have been true in a very few cases on the part of small beekeepers, we know it is not true of the great mass of beekeepers. Moreover in many cases the beekeeper cannot give honey on account of the danger of disease.

Everybody is wanting sugar. The candy-makers are restricted to 50 per cent, and the beekeepers to 70 per cent of their normal requirements. Other industries have been curtailed in a similar way; but the bee industry differs from all of them from the fact that **for every pound of sugar given to the bees they return on the average, on a conservative estimate, 10 pounds of honey.** In many cases they will return more.

There have been various newspaper clippings to the effect that after Jan. 1 sugar will soar to 18, 19, and even 20 cents a pound, and it may do so. But very recently the Sugar Equalization Board has fixed the price of beet sugar at 10½ cents, and Louisiana sugar at a maximum of 17 in carlots. There has been some intimation that this Board is to be continued until December, 1920. No one seems to know. If Uncle Sam removes all restrictions, sugar will soar, and honey—well, that will go up too.

How to Feed During Cold Weather.

Assuming that sugar will be available by February, and before the bees run out entirely, some instructions should be given as to how to feed during midwinter. Where the colonies are in a cellar, thick liquid syrup can be given, but sparingly, and as little as possible; and if the bees have enough to last a couple of months they should not be fed until toward spring. The same rule should apply to outdoor bees. The less actual disturbance during midwinter the better, either indoors or out.

Let us suppose that John Jones was expecting a fall flow that did not materialize, as is the case with a good many. Unlike the case mentioned in preceding paragraph Jones' bees have enough to carry them thru to January. We will suppose he is able to get sugar after that date. If he must feed, we advise giving cakes of **hard** candy. A two- or three-pound cake, placed with as little disturbance as possible to the bees, under the packing, and directly on top of the frames, should carry the colony thru until the first of March, when another cake can be given.

The question arises as to what kind of candy to use and how to make it. The ordinary Good or queen-cage candy is not alto-

gether suitable. The bees will suck out the honey and allow the granules of sugar to drop out on the bottom board. If soft candy is used, it should be given in some sort of container—a wooden or paper pie-plate—where it can not run down among the frames if it becomes soft. Two sticks should be laid across the candy, when the packing can be folded over.

A much better candy for midwinter feeding is made as follows:

Into an ordinary kettle of good size pour sugar and water in the proportion of three parts of sugar to one of water by measure. Stir thoroly. For every 20 pounds of sugar put in about one-fourth teaspoonful of tartaric acid. The mixture should be dissolved before applying the heat. Boil for an hour or so. As the white scale or incrustation forms on the inside of the kettle, scrape it down. While it is cooking, tests should be made frequently as follows:

Dip up a spoonful of the boiling mixture and slowly pour it back. When it leaves a fine string it is cooked nearly enough. Now, then, from time to time, with the spoon let a stream fall into a cup of cold water. When the boiling has proceeded far enough the string under water will be brittle and crack.

Some use the plan of dipping the finger into cold water and then into the hot syrup and out again instanter. This will leave a film of sugar around the finger. When this film cracks on bending the finger the cooking has proceeded far enough.

Another and a better way to determine when to stop boiling is to use a thermometer and bring the temperature up to 270 degrees. By that time the water will have been evaporated, when the hot mixture can be poured (never scraping down the sides after beginning to pour) into paper or wooden pie-plates, which must not be disturbed or moved at all till the candy has hardened. Paper pie-plates are just about right, and hold about three pounds. One of these, when cold, can be placed on top of the brood-frames upside down, being sure to place small sticks beneath the inverted plate of candy and so provide a good bee-space between it and the top of the frames.

It is a rather nice job to make hard candy (not too hard nor too soft) for winter feed, and it will be well to get in touch with some woman who knows how to make home-made candy, as the first experiment may result in failure. Extreme caution must be exercised not to burn the sugar. Some beekeepers use honey in place of tartaric acid, but experience shows that by the use of too much honey the candy will be too soft and "run" all over the frames. A pound of honey to 20 pounds of sugar is enough. But another difficulty with the honey is that it is liable to burn on account of the extremely high temperature, 270 Fahr. The A. I. Root Co. use an invert sugar in the form of nullo-moline in place of honey in the proportion of 1 of nullo-moline to 12 of sugar. This does not burn, and makes the candy a little softer.

O. L. Hershiser, at the Buffalo convention held recently, stated he had been having a good deal of trouble in making the candy; but it developed he had been using too much honey. He told how he fed his bees successfully one winter by making a syrup of three parts of sugar to one of water, putting in a level teaspoonful of tartaric acid to 24 pounds of the syrup. The syrup was fed from friction-top pails, the top being perforated with a common awl. The holes should not be larger than $1/32$ of an inch, and the top should fit air-tight. If they do not fit tight they should be made so with a rim of paper. The syrup should be fed cold to avoid exciting the bees. The hive should be level, and the can of syrup should be allowed to drain in an inverted position over a pan until it ceases to drip before putting on the hive.

The objection to any kind of syrup in midwinter is that it is apt to stir the bees up so they will fly out; and there is the further objection that a five- or ten-pound pail full of syrup put under the packing and on top of the frames is equivalent to a big stone or a piece of iron. Such a large mass will have a tendency to chill the cluster, because the bees would be next to the bottom of the can. A slab of hard candy in a paper pie-dish about $3/4$ inch thick will not dissipate the heat like a much larger bulk of syrup in a can. The candy contains no water, while the syrup does.

We very much prefer the candy for an emergency winter feed if the beekeeper can possibly make it and we think Mr. Hershiser would also.

One thing more: If you are unable to get any sugar, write us, and we may be able to tell you where or how you can get it. We may or may not be able to supply you; but our readers may rest assured that Gleanings will do everything possible to enable its subscribers to get sugar at cost, to us.

In the mean time the reader is requested to read over carefully our editorial on the sugar shortage, in our November issue, if he has not already done so.



THE GOOD NEWS comes from the home of Dr. Miller at Marengo, Ill., that he continues



Dr. C. C. Miller
Still Improving.

to improve, and the hope is expressed that the beekeeping world may not yet have to give him up. Mrs. Miller, writing to Gleanings under date of Nov. 16 says:

"The 'tired heart' has responded nicely to treatment and is again beating quite regularly. The thing now is to pick up strength, and a few more years may be added to the blessed 88 years already given."

Now that the good old Doctor is on the highway to recovery, we do not believe he will be averse to hearing from his friends, but they should not expect replies to any greeting they may send him.

"HOW do you get honey quotations?"

"Do you rely on the quotations printed in the bee journals?"

"Do you believe the Government quotations are correct? the wholesalers'? the producers'?"

"How do the honey-buyers approach you?"

"How do you try to get a fair price?"

"Do you think uniform prices can be established by honey-producers' associations?"

"If dissatisfied with present methods of buying and selling, what is your solution of the problem?"

Those seven questions were sent a month ago to about a half-hundred successful and prominent beekeepers thruout the United States and Canada by *Gleanings in Bee Culture*, with a request to send answers. We said to these beekeepers: "You would be

WHOM CAN BEEKEEPERS TRUST

On What Honey Market Quotations Can They Rely? How Does the Honey-Buyer Work? Associations?

By Prominent Beekeepers

(Together with the camera's story of a sale of honey.)

selves: "It's none of *Gleanings'* business nor anybody's else how I sell my honey." We suspect more of them thought this way—in very brief: "I

am not going to give anything away to the honey-buyers."

The reasons of those not replying, we don't question at all. It was entirely their



Scene 1—the buyer arrives, and—

interested in these questions, wouldn't you, if a lot of live, wide-awake beekeepers would answer them and you could read the answers?" We invited the beekeepers to answer in their own way and to take any scalps they pleased—and we would publish their answers.

Our purpose was to give all readers of *Gleanings* the best possible ideas as to how to get the most reliable honey quotations and the best price for their honey.

The most significant fact, perhaps, about the result of this appeal to 50 successful honey-producers for marketing information and experience was the answers we didn't get. Only about a third of those addressed responded. We thought we wrote them the sort of letter that would bring all of them out of their holes, so to speak. It seems we didn't. Two-thirds of them stayed in.

Well, why?

Some of them were probably too busy to reply. We suspect one or two (we are charitable in making this estimate) said to them-



approaches the beekeeper, who—

own business. But the answers of the third who did respond we shall try to give here fully for the benefit (as we believe) of all beekeepers who may now or hereafter have honey to sell. As will be seen, we are letting the bee journals "take their medicine," and no "scalp" taken is kept from our readers nor any of the discussion contained in the answers repressed. Only one or two



is presented with the buyer's card.

of those who replied gave answers to all the questions asked.

"How Do You Get Honey Quotations?"

To this question, five gave no answer; three say they get their quotations from the Government market reports; two from the Government market reports and beekeepers' journals; one, from *Gleanings* and *American Bee Journal* only.

J. E. Crane of Middlebury, Vt., says:

"We get the quotations of the Government as well as bee journals, wholesalers and retailers, and producers. We try to learn all we can from everybody interested. Editorials of bee journals perhaps give us the best ideas of conditions."

R. F. Holtermann says: "My estimate as to the price that should be set upon honey is based upon: The available supply; the value and amount of produce entering into competition with honey; the purchasing



Scene shifts to the honey house, where—

power (in other words, the temporary prosperity) of likely customers and their estimate of the need for it; and the amount that can be asked for it without putting it outside of the consumer's consideration."

S. H. Burton of Washington, Ind., writes: "Honey quotations are secured thru the Government market reports and the bee journals. We also ascertain the wholesale selling price to the retail trade by asking our local groccerymen what they pay for



the buyer looks at the comb honey,—

honey from the wholesaler. I am also acquainted with several traveling grocery salesmen who are willing to give me their latest prices to the retail trade."

The Pettit Apiaries (Morley Pettit), Georgetown, Ont., says: "We follow closely every available source of information—the Government reports, the bee journals, the prices recommended by the crop report committee, quotations in the leading daily papers, etc."

F. Eric Millen (formerly State Apiarist of Iowa, now Provincial Apiarist of Ontario), Guelph, Can., says: "Members of the Ontario Beekeepers' Association are in position to secure fairly complete reports of both light and dark honey crops, as over 1,200 members are circularized regarding the honey crop, and then the 'committee on honey crop reports' meets and advises the beekeepers as to what price they feel honey should sell for, taking into consideration the crop both in Ontario and in the States so far as can be ascertained, crops of small fruit, supply of sugar, and any other factors that will enable them to arrive at a fair price."

"Do You Rely on the Quotations Printed in the Bee Journals"?

To this question, N. E. Miller of Logan, Utah, says just plain "No." Edward Hasinger, Jr., of Greenville, Wis., says "Partly." F. W. Lesser of East Syracuse, N. Y., says "bee journal quotations I have not found to be very accurate and usually too late to help in selling to the jobbers." T.



and proceeds to the extracted, which—

W. Burleson of Waxahachie, Tex., writes: "Yes, I think the quotations in the bee journals are very accurate and just." Fred Leininger & Sons, Delphos, O., say: "We are perfectly satisfied with the quotations. We sell our honey to some of the largest honey-buyers in the world and rely on the prices they quote." E. F. Atwater of Meridian, Ida., says: "I place some reliance on the quotations by dealers in the bee journals." W. E. Elam of Greenville, Miss., writes: "Of course, some quoted prices in papers are high and some are low, depending on who makes the price."

F. Eric Millen tells us: "I receive the Federal reports and as these come to hand before the bee journals, I do not rely on the bee journals for quotations, altho helpful information is often obtained from the bee journals, as reports dealing with various factors which are not mentioned elsewhere."

R. F. Holtermann of Brantford, Ont., speaks right out in open meeting on this question as follows: "No, I do not rely upon the quotations printed in bee journals

or other publications. They are compelled to get quotations from interested sources, and I have seen a good many instances where they were absolutely incorrect. Wholesalers when they have a light stock may consciously or unconsciously seek to depress the market, and when they are overloaded they may keep the price in the paper up in order to try to get the beekeeper to ask a price at which he cannot sell and on account of quotations will not sell. Last winter in Toronto and other places the market quotations ran along 25c per pound, and yet many beekeepers could not sell at 20c per pound."

S. H. Burton says: "We rely somewhat on the quotations printed in the bee journals and find them fairly accurate. But owing to their being monthly publications we do not like to depend entirely on this source of information for up-to-the-minute prices."

Morley Pettit sizes up the market quotations in the bee journals in this way: "Altho there is much conflicting information from these different sources, it enables the

W. Lesser expresses this opinion: "Government quotations I believe to be juggled by reporters. In one market white clover is reported as selling for less than Southern amber, and this repeatedly; wholesaler's quotations the same; producers' more accurate." T. W. Burleson says: "As to Government quotation accuracy, yes, in a large measure; they have a fine system for gathering reports and I would rely upon



the argument begins.

them; the wholesalers'—no; the producers'—not always."

E. F. Atwater writes: "I believe and hope that the Government quotations are more reliable than those of either dealers or producers as a general proposition, for they are probably less influenced by self-interest."

F. Eric Millen's opinion is: "I certainly believe the Government quotations are as accurate as possible, as there is absolutely



he samples, and then—

wide-awake beekeeper to form a fair idea of market conditions. We do not absolutely rely on any of the quotations given, but allow for the 'thought behind' in the different ones who quote. We follow with the keenest interest editorial notes and comments in the Western Honey Bee; for California is first on the market, and prices received there give a fair forecast of what we may expect."

Several express no opinion as to the quotations printed in the bee journals.

Do You Believe the Government Quotations Are Accurate? the Wholesalers'? the Producers'?

"No, but best we have," says N. E. France of Platteville, Wis. N. E. Miller says about the Government quotations being accurate, "sometimes"; but as to the wholesalers' and producers' quotations, he says: "No, I should say not." J. E. Crane says: "We do not consider the Government reports very accurate, but they help to give us a general idea of conditions." Edward Hassinger says: "At the present time I believe these quotations are accurate." F.



"You must think I'm a fool."

no reason for them to distort the facts. As regards the wholesalers' and producers' quotations, these may be a little off one way or the other, depending on the view-point of the two parties, but I believe they are generally very near the price one wishes to sell for and the other wishes to secure."

S. H. Burton writes: "I do not believe the Government quotations are accurate and have invariably found them below what we have been able to secure in our local markets. I also believe the wholesalers are in-

clined to "bear" the market at every opportunity."

Adams & Myers of Ransomville, N. Y., write: "Regarding honey quotations we rely on the quotations recommended by the Western New York Honey Producers' Association's committee. This committee is composed of five members who gather all the data they can regarding crop and market conditions and determine a fair minimum price based on their information."



"Absolutely impossible to pay any such price!"

Morley Pettit gives this view: "One could scarcely rely on the accuracy of both the wholesalers' and producers' quotations in Canada this year. There has been a sharp contest, wholesalers determined to bring down prices, met by an equal determination on the part of producers to hold to last year's standards. The producers who have held steady are winning out, but many faint-hearted ones, while loudly protesting that prices were not high when compared



"I've got about three minutes more."

with other food products, have made sure of selling their own crops by retailing at wholesale prices."

"How Do the Honey-buyers Approach You"?

"Every old way they can," says N. E. Miller out in Utah. T. W. Burleson says, "thru letters." F. W. Lesser's observation is: "Buyers of honey, as good buyers of all commodities, usually depress the market when buying."

W. E. Elam says: "The buyers generally ask me to quote them a price. I usually refrain from quoting prices, but I suggest a price that I would probably accept if I do not get a better offer in the meantime. This usually brings a telegraphic offer, which I close if suitable. If not high enough, I write that I will close when all quotations are in. I do not ship honey on consignment."

Mr. Holtermann writes: "Honey-buyers do not often approach me. Being willing to take a fair market price and seeking to supply an article as represented, there is no difficulty in disposing of our crop."

Morley Pettit says this: "Let the beekeeper not wait to be approached, but put his product before the public—either the wholesale buyers, the retailers, or the consumer, as he may select."

"Honey-buyers," says E. F. Atwater, "usually try to approach me with circular letters; more rarely in person; and occasionally with absurd offers which are anything but complimentary in their assumption."



"Nothing doing at that price"—and

tion of ignorance on the part of the producers."

J. E. Crane reports that "honey-buyers rarely meet me, but I receive their cards or requests for honey."

Edward Hassinger says: "Honey-buyers ask for sample and lowest quotation."

"How Do You Try to Get a Fair Price"?

"Governed by U. S. market reports," is N. E. France's rule. "By holding," says N. E. Miller. T. W. Burleson says: "I take the quotations from the bee journals and Government bulletins and local conditions into account in arriving at a fair price." F. W. Lesser's procedure is thus stated: "I try to get fair prices by judging the crop and by the prices paid in the West, which set the prices for the East."

W. E. Elam says: "Most buyers come back with an offer of about half of what I quote. Due to this I usually offer to only two or three dealers regularly who have paid me reasonable prices in the past. I feel out the others occasionally to see if they have changed their methods—usually they have not."

"In Ontario," F. Eric Millen reports, "for the past few years the buyers have realized that they can do very little with the beekeeper, if a member of the association, unless they offer very close to the price recommended by the crop committee, so that if beekeepers hold for this, they seldom fail to obtain it."

S. H. Burton says: "I get all the quotations possible, study them thoroly, and then make up my price in accordance with the facts and what is fair and just. I never would let the other fellow set a price on any commodity I had to sell, be it labor, apples or honey; and I am known in our local community as the 'price setter,' and all the others follow. If we start comb honey out at 35c per pound retail, then there is very little offered above or below this figure in our territory. The bulk of my honey is sold locally. I have moved some 4,000 pounds in 60 days in our local market, a town of 12,000 inhabitants. I create a demand for this honey by judicious advertising and window displays. I induced one grocer to let me fill



the buyer moves off, and—

up his large plate glass show window from top to bottom with cases of honey. The grocer made the remark that it was 'some honey' but that he would not sell that much honey in a year. In one week from the time we made the display he had sold \$100 worth of honey, and still the demand grows."

Morley Pettit says he tries to get a fair price as follows: "To arrive at a fair price I consider carefully the honey crop reports all over the continent, the sugar situation, fruit crop reports—particularly the apple crop—and the price of food products generally. The confidence born of a knowledge of the situation is a large factor in enabling one to hold for and obtain a fair price."

E. F. Atwater blames the beekeeping craft for getting less than fair prices, saying: "I think from my own experience in producing and selling tens of carloads of honey that many producers sell at too low prices, and are themselves the worst enemies of the craft. I am sometimes ashamed to think that I am numbered as a member of a craft which, in the face of rising costs of nearly everything required in the production of a

crop, are so weak-kneed as to be willing to sell their product at almost any price offered."

J. E. Crane says: "I sell most of our honey direct thru wholesale houses that we have found reliable. Wholesale houses take orders for our honey thru their drummers that are on the road, and we ship direct to the retail merchant, we setting the price. This saves the wholesale merchant the trouble of storing and any risk. Drummers



still farther off.

from a wholesale grocery house can just as well take orders for honey as other groceries, and it takes little extra time or expense. Sometimes my son has gone on the road but it is rather expensive where but one class of goods is sold. We are very well satisfied with the price we receive. Our methods of sale usually save the retailer one shipping expense or one freight bill."

Edw. Hassinger gives his method of sell-



"Come back here a minute."—

ing for a fair price as follows: "I send out large samples to a large number of buyers and ask a fair price in accordance with the quality of the honey, and always find one buyer out of the large number who can pay 10 per cent more for my honey, considering quality, than the average buyer pays."

"Do You Think Uniform Prices Can be Established by Honey-producers' Associations?"

"Yes, if the honey-producers' associations will co-operate with each other," is

the opinion of T. W. Burleson. F. W. Lesser thinks "associations doubtless help, but the law of supply and demand is the main thing; let associations take the place of speculators and some of the jobbers, as the speculators gouge the producer some of the time and the consumer all the time." N. E. Miller says, "No." N. E. France says: "No—location and pasture change price." "Uniform prices can be obtained thru bee-



And the buyer starts back, you bet.

keepers' associations," say Fred Leininger & Son.

Edw. Hassinger writes: "I do not think uniform prices can be established except for local communities by price committees, representing honey-producers' associations. I do believe that minimum prices can be established in accordance with supply and demand. Supply and demand will make the price and take care of itself in time."



They get together in short order, and—

Morley Pettit thinks: "If the orange-growers, the raisin-producer and the cranberry-producers can associate and form a producers' association as has been done, there is no reason at all, why in the course of time the honey-producers cannot do the same, and then uniform prices should be easily established."

Jay Smith of Vincennes, Ind., comments on only this one question of honey-producers' associations establishing uniform prices, and says: "I have had in mind for a good many years a kind of Utopian dream on this

subject. I would not have told what this dream is only it seems to me now that things are working that way. I believe that if honey-producers' associations will all co-operate in one grand National Honey-producers' Association (as the movement at present is in that direction) that by a systematic drive to get all honey-producers to join an association which belongs to the National, we could then take a cent or one-half cent per pound for all honey handled thru this affiliated association and carry on an advertising campaign thru the big periodicals such as was never dreamed of before. One-half cent a pound would bring us millions of dollars for advertising, and honey would be in sharp demand at a greatly advanced price. I should think at least 25 to 30 cents wholesale. No longer would we have Government reports publishing, "Moving slow." It would be, "Great demand." We know that a large number of companies are putting out other kinds of food and getting high prices for it, not on



Mr. Beekeeper gets a check.

the merit of the food itself, but on the merits of their businesslike and extensive advertising campaign. If the honey-producers can get together and associate as I have mentioned, they could carry on an extensive, businesslike advertising campaign, and, in addition, they would be offering to their customers an article of food absolutely unsurpassed in quality. This might not be carried out in the immediate future, but if we all pull together it can be quite soon. Join your association and get others to do so."

W. E. Elam says: "I believe honey-producers' associations could have a wholesome effect on the market, if they could enforce proper care in producing and extracting honey. Personally I would not care to ship my money with the man who is not clean in his extracting work. If an association could handle enough honey to prepare it for the retail trade, that is, establish re-packing plants in the different territories to be supplied, it might build up a stable business. It is doubtful if this could be accomplished, as so many producers have their own local trade that they would not give up under

any scheme. Those packing plants would blend honeys or have certain producers pack honey in shape for retailers."

R. F. Holtermann expresses his ideas as follows: "Honey-producers' associations can not well establish uniform prices. It can only be done as long as the supply does not exceed the demand. When competition arises in securing a customer, there will be cutting in prices. Then, too, with the variety in quality, judgment in grading will vary, and few men have the calm, judicial mind to be able to judge their own baby impartially. We have been in towns where the seller and the workman have had very little competition. I do not think it would be well for us if that condition existed very long. As a rule, we stand adversity better than prosperity."

S. H. Burton says: "There is no question but what uniform prices can be established by honey-producers' associations—that is, if the association is a real live one and the members are willing to abide by the decision

sible locally at an agreed price, as local consumption aids distribution."

Wm. Muth-Rasmussen, of Independence, Calif., writes: "Individual honey buyers eliminated this year. Am a member of that 'California Honey Producers' Co-operative Exchange,' which now handles nearly all the honey of this locality, and I feel confident that the management is doing the very best possible for the members. We are only



"No, no. You're wrong. I am giving you a great big price, sure."

beginning, but expect to improve as experience is gained and markets developed. I am satisfied with the dealings of the Exchange."

"If Dissatisfied with Present Methods of Buying or Selling, What Is Your Solution of the Problem?"

"Have one organization and all join," is N. E. Miller's solution. N. E. France's



They shake hands, and declare amity.

of the fair-price committee. If a member will not agree to abide by the decision of the committee, then he should be expelled from the association and not permitted to have a voice in its affairs."

Morley Pettit's view is that "Honey-producers associations have already done a great deal toward establishing uniform prices. As they grow in numbers and influence, greater results can be expected, and there is much yet to be done."

E. F. Atwater says: "While it is unfortunately true that associations do not receive the support which they need from those whom they are designed to benefit, yet they do help when organized in accordance with business principles and when efficiently managed. It is my opinion, that before many years we shall have an amalgamation of the more successful co-operative organizations, controlling the principal carload-shipping districts, looking toward the more intelligent distribution of our product."

Adams & Myers say: "We believe that uniform prices can be established thru honey-producers' associations. We believe that each beekeeper should sell all the honey pos-



"Well, goodbye. See you next year."

advice is: "Get quality goods—they sell themselves; sell to the consumer." F. W. Lesser gives this as his view: "I think the producers have had high enough prices the last few years. Cut out some of the cost and profits between them and the consumer."

T. W. Burleson says: "This question is a corker. I am not at all satisfied with the buying and selling method. But I think with co-operation on the part of the different honey-producers' associations and the bee journals, we would soon be able to so

understand each other that we could get much better results and the producer would be much better off for success in this undertaking."

F. Eric Millen says: "At the present time there are far too many grades and qualities of honey on the market. The public buys one flavor and quality of honey today, and another flavor and quality tomorrow. They may like the one and not the other. Some definite form of grading, so that all the honeys produced in one State or Province are practically uniform, would tend to make honey a more staple article, and finally would work out to the benefit of the beekeeper by returning him a more uniform price, and one that would give him a fair profit for his labor. I believe the selling of honey is a separate business, and it will be placed on a firmer basis when there are more selling organizations."

Morley Pettit's answer is: "We have no particular reason to be dissatisfied with present methods of buying and selling, so long as the supply is so far short of the demand. As the industry develops and production increases, more organized effort will be necessary in advertising and distribution to place honey where it belongs as a staple food."

E. F. Atwater says: "With greatly increased production, I fear that we may see times come when sales will be difficult and prices unsatisfactory, unless honey can be

furnished to the consumer in neat, low-cost packages, at a reasonable advance over the price received by the producer."

Fred Leininger & Son say: "We are not dissatisfied with present methods of buying and selling. We buy needed supplies thru our organization, thereby getting better prices at a discount of quite a saving. Our association meets the second Tuesday of each month to discuss the various questions of the day. We have many pleasant meetings and are getting better acquainted and are learning more of each other, making life worth while."

Adams & Myers say: "We think the present methods of buying and selling very good, but can be improved upon by a little co-operation and education to the fact that all our interests are mutual. Much could be accomplished by co-operative advertising, and, by so doing, the demand for honey will grow faster than increased production can supply it."

R. F. Holtermann's view on this final question is this: "There are honest and dishonest dealers; there are honest and dishonest beekeepers. An honest man prefers to deal with an honest man, and if each knows the other to be so and he knows there will be no unpleasant afterclaps, he can afford to work on a finer margin, because he feels sure that that margin will not be jeopardized by unforeseen and unagreed conditions arising."



Beekeepers find time for sport. At the extreme left of this picture is Ira Bartlett, one of the best beekeepers in Michigan. After his bees were in winter quarters last fall, he went deer hunting. The big buck he got hangs just behind him.



ANNE LESTER AND DADDY LOWE, BEEKEEPERS



By Grace Allen—Chapter XI

IT was nearly Christmas. Long ago Anne had sent off her package for Robert ("But why don't I hear from him?" she kept worrying). Then her busy fingers had made countless bright friendly things for hospitals; and now she was wrapping gifts for some little city children to whose chimney-tops she had been guiding old Santa for years.

The telephone rang. Some lady, visiting a neighboring farm, wanted to talk to Mr. Lowe. He wasn't there, Anne explained. "I wanted to ask him about starting with bees," the voice regretted.

"Can I help you any?" Anne asked. "I am Anne Lester, and Mr. Lowe is kind enough to speak of me as his assistant." The lady was delighted. Question followed question and more of them, while Anne answered and explained and advised. "No," she was patiently repeating at the last, "I really can't advise your buying the bees and moving them to your home at this season. As I said before, early spring is the best time."

"But I hate to wait," sighed the lady. "I'm so enthusiastic now."

"Why not spend the winter studying?" suggested Anne wisely. "You can subscribe to a bee journal and get a book or two and some government bulletins, and by spring you'll know much better how to go about it."

"Oh I'd much rather someone would tell me," the lady confided, while Anne wearily changed the receiver to the other hand. "I'll be out visiting my cousins again in the spring, and I'll run over there some day, if you don't mind, and let you tell me all about how you manage."

As Anne finally hung up, Jack entered, coming home from an interview with a certain superior officer. "Do let me speak first," she implored. "I beg to announce that some day I am going to write a book—about beginning with bees—and every other sentence is going to say that the people who won't knuckle down to read and study—"

"Deserve to be stung," finished Jack. "Be comforted; they quite likely will be."

Anne smiled. Then the face and eyes of her turned all to a question. "Tell me, Jack," she said gently, as he laid off coat and gloves.

"It's bitterness and joy mixed," he answered gravely. His young face almost hard with suppressed feelings, he walked to a window and looked out across the winter earth, seeing nothing there. "No more overseas for me, Anne," he said shortly. And Anne looked out of another window and saw nothing there. Such a tragic world to be young in!

"I'm sorry," was all she said, in that

strangely moving voice of hers, at once so low and so vibrant.

"It's the other fellows," Jack said almost harshly, "the fellows over there meeting it all, that get me so. Like Robert. No letter yet, I suppose?"

She shook her head with the look of dread that was beginning to show so often.

"Oh, well, it'll come soon," he reassured her. Then coming hopefully back to himself, he added quickly, "There's a good chance they'll put me on instruction work at camp, tho, Anne."

He told her more about his interview, then asked, "Where's Dad and Mother?"

"Gone to town to buy something. They'll be back soon. Let's go out to the shop, Jack. Your father's arm is so lame he can't work much, and we can easily nail up frames while we talk."

They left a conspicuous note on the table, announcing, "We, too, have gone to shop." And soon they were at work.

Rap tap tap went their hammers. "Am I seeing right?" Jack exploded presently. "Are you beating me at this job?"

"Oh surely not," deliciously humbly.

"Oh surely so!" rebelliously.

She laughed. "You're out of practice. I've learned how to pick up the different pieces and hold them so as to work to the best advantage. Like this—watch. Of course, your father showed me."

"But why all the haste anyhow?"

"Well it's fun for one thing. As Daddy Lowe says, there's a real satisfaction in seeing how quickly and skillfully you can do things."

"He's right, of course. I've often heard him announce on New Year's Day that he was all ready for spring."

"Now isn't that wise? He keeps me busy admiring him. Why, this fall, as soon as the bees were ready for winter, he started planning for next season. So much increase, so much foundation, so much this and that—a few new covers, and so on. Then he took a careful inventory. Counted up everything he had and ordered everything he didn't have."

"No early spring ever yet sneaked in on Dad and found him hollering for supplies."

"Yet things happen to him, same as to the people that tell their troubles to the bee journals and explain just what happened to keep them from having their new hives ready when swarming time came. He's got this lame arm now. But he starts so early he keeps ahead of any ordinary setbacks or interruptions."

Rap tap tap the hammers kept on, and one by one the rapidly nailed frames were hung in the supers.

"Anne," said Jack finally, "there's something I want to talk about."

"Oh, not now," protested Anne, suddenly very young and confused.

"Not that," Jack said gently. "Tho I shall want to know soon if you will marry me before—"

"Jack—don't!"

"But Anne dear, you'll really have to get used to the word!"

"It's grown to be such a big word—so sort of overwhelming," she explained; "and lovely, too," she confessed softly.

Into the boy's eyes came a look as tho he had bared his head to something holy. Then he went quietly on with his work.

"All I'm going to talk about—right now," he began again after a few minutes, "is what I'm going to do after the war."

Anne looked up quickly. "Goody!" she beamed. "That's what I want to hear about."

"What would you like me to do?"

She shook her head. "That's not the way for you to decide."

"It's one way. But anyhow I've already decided. You see it's like this. There are two things that I guess are in my blood. They were born in me and I've been brought up on them. And before I ever saw you, I heard that they were the very things you cared most for in all the world. Guess what."

"Books, probably, for one," Anne mused daintily, "before I knew you."

"And all outdoors for the other," Jack added. "Well, I reckon that one time or another I've decided on every possible career from cowboy to millionaire. And Dad, like the good sport he is, just kept still. I went to college still undecided. But college did a lot to settle things. The war's done still more, and I guess you've finished it. Riches go hang! I'm going to be a bee-keeper like my Dad!"

Anne's eyes were shining. But she said not a word. So he went on. "I've thought it all out. All the money in the world isn't worth a copper cent except for what it will give a fellow. And I figure it gives chiefly luxuries and leisure. I'm going to swap the luxuries for health. As for leisure, you can get that two ways. You can slave for years—with never a minute for history or science (my favorites)—just to pile up a lot of money just to get a lot of leisure some time later. Or you can have a reasonable amount of leisure as you go and not slave at all."

"Like Daddy Lowe," said Anne.

"We're going to be like Dad and Mother, aren't we?"

"Perhaps," the girl smiled quietly, "when we're as old as they. Meanwhile if you ever get to feeling uncomfortably ambitious, don't forget that honey-production can be made a pretty big business—not a get-rich-quick affair, but a get-rich-enough quick-enough business. There are honey-producers whose incomes average—oh, I don't know—thousands of dollars."

"Well, just watch us," crowed Jack. And

there came a rap at the door.

"Katherine!" they both exclaimed as a radiant girl floated in, followed by an embarrassed but happy-looking Theodore.

"Mr. and Mrs. Lowe sent us out here. They're coming too." Katherine slipped an envelope into Anne's hand. "We wouldn't let the mail bring it to you, we brought it ourselves."

"Married!" gasped Jack, looking at the wedding announcement, while Anne touched the other girl's forehead with her lips and then gave both hands to Theodore.

Just then the two old people came in, Mrs. Lowe with a foreign letter. "From Robert!" Anne cried. "Will you all excuse me?"

Hurriedly her half-frightened eyes swept the lines. Then came a low cry and she crumpled into her chair, as white as the paper that fell to the floor.

"Sweetheart!" Jack cried, leaping to catch her. "Anne—my Anne!"

"Look at the letter, Jack," Mrs. Lowe directed gently, "while I tend to Anne."

So when the girl's eyes opened at last, Jack was leaning over her, smiling. "It's all right, dear," he was declaring happily. "Old Bob's in clover. He just told things backwards—the old chump!—and all you saw was that he was hurt and not coming back. He's had an awfully close call, but the only reason he's not coming back is because he's going to marry a French Red Cross nurse with a rich father and be a Parisian bank director all his life! He'll always be lame, but he says he doesn't mind that, because he suspects Marie is chiefly in love with his limp!"

After they had re-read the surprising letter and talked it all over, Jack smiled uncertainly at Anne. "I hope you won't mind, Anne," he said, reddening boyishly, "but I'm afraid I spilled the beans! When you went all in a heap that way, I guess I made our announcement too!"

"Well," Anne said, after the friendly little wave of congratulations and good wishes had passed, "for a wartime Christmas, this is going to be a pretty good one after all." She looked from her letter to the circle of happy faces there in the early winter twilight of the old workshop, and smiled. "It's a little like an old-fashioned play," she said, "where everything ends all right in the last act and the actors all come out together and bow to the audience! Now if only the war were over!"

"It will be, before another Christmas," Mrs. Lowe said serenely, tho no one knew she spoke the truth.

Anne turned suddenly to the old beekeeper, laying her hand in his. "Daddy Lowe, if you could give all us young folks one great gift, right into our hearts, what would it be?"

"Wisdom," the old man answered simply. "For 'in all ages, entering into holy souls, she maketh them friends of God.'"

THE END.



REFLECTIONS OF A BACKLOTTER

If You Want to be a Beekeeper of Good Standing
Try all the New Things

There are so many interesting things about the bee business that I must ask your pardon for doing all the talking, but I simply must give you the benefit of my experience. I should be quite willing to step aside and give some of the rest of you a chance; but, as I told you at the last club meeting, I have the right of way because I can do more talking than the rest of you. That's why you made me president. This is my monthly presidential address.

I've always made a good deal of fun of Friend Wife for her desire to be in style. It doesn't hurt my feelings any if I have to wear a suit of clothes three years if it is fairly decent and if the holes are not too big. But Wife must have a new suit every year and a lot of other things, just because it is the style. I'm convinced that this slavery to style is all wrong in women, but I'm not going to try to reform that condition. What I'm going to tell you fellows about this evening is about the styles in beekeeping. It is certain that you can't be a good beekeeper unless you are wearing the 1919 model, as it were; that is, doing the thing which is the last word.

You fellows who have been in the business only a little while may not know about this style business. But as I told you before I have decided to become a regular fellow in the bee business and I've been reading all the back bee journals that I can find. So I'm going to tell you what I've found about this and that will save you a lot of reading. I may as well tell you that if you are to be beekeepers in good and regular standing you must try everything that is advocated and drop what you have been doing, for I am sure that you want to do the right thing.

You know, of course, that Mr. Langstroth invented the movable-frame hive in the fifties. Well, after he made us a good hive for comb honey we went along for a time all right, but pretty soon the fraternity was organized. Now, as I am going to tell you this evening, the constitution of the fraternity requires that the styles in beekeeping shall be changed frequently.

At first most of the changes were in hives. The hive was then considered the most important thing in beekeeping, consequently that was the place to change all the time. Now we know that the hive doesn't make much difference after all, so we have all about agreed to let it alone and to make the changes in things that really cut more figure. Maybe you don't see the logic of that, but after you have been in the busi-

ness as long as I have and have studied up on the history you will, I am sure, agree with me.

First of all, the style changed so that all hives were to be made one board thick. That style reminds me a good deal of the skirts that the women are wearing now. I've often thought that the women get chilly at times, and I suppose the bees do too. But the bees are game sports and do not object as long as their owner plays the game according to the rules.

Then we ran up against a law of Nature that made a quick change in the styles necessary really before it was time to make a regular change. The bees simply could not do well in a hive like that. The style had been set without consulting the bees. As I said the bees did not complain, for they are in this to the end; but the less husky colonies died in spite of their good intentions, and all the rest were so weak in the spring that something had to be done about it. There were one or two beekeepers who thought that we would have to go back to the packed hives but they were soon ruled out. You might as well try to get women to go back to the styles of year before last as to try a game like that among beekeepers. So the fraternity in convention assembled decided on a smaller hive. If the bees were made so weak that they could not fill a man-sized hive, then of course the thing to do was to make a toy hive. We did. First we had the eight-frame hive for a time, and we got on fairly well with that. Of course, the crop was reduced, but what is a crop to a beekeeper who is a regular fellow?

The next thing was a shallow hive, and this idea hit hard. Us for the shallow hive. The bees could not fill the eight-frame hive so as to get a good crop of comb honey. Consequently we made a lot of hives, about one a year, that would not allow the bees any space for honey in the brood-frames; so there was nothing for it but that the bees put what little they got in the supers.

That got us into no end of trouble, for of course the bees died like rats in winter because of lack of stores. But where there's a will there's a way, and stimulative feeding in the spring came to the front. That saved a lot of the bees but still they died. The winter losses were about 25 per cent every year and all sorts of plans were proposed to arrange that little detail.

I remember reading an account of one convention where an old fogey insisted that the only thing to do was to put the bees in a full-sized hive and pack them heavily in winter. He insisted that spring feeding is bad and that it is impossible to get a full crop unless we have big colonies. He even went so far as to quote Father Langstroth in his advice to keep all colonies strong, but

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even quoting the Founder did not save him and they put him out of the association.

That fall cellar wintering came in strong, and it was to be the way to revive the beekeeping industry. All sorts of arguments arose as to the best temperature, but it was finally decided that the best one is the one you have. That was an easy way out of the difficulty and it had the advantage that every beekeeper who wintered in the cellar was in style! It isn't very often that we can get a style that doesn't cost us money. Of course, a lot of fellows lost all their bees, and a lot more had mere nuclei in the spring, but they bought more and stayed in the game.

About ten years ago the fraternity got into an awful tangle, for a rather large number had decided to make beekeeping their sole occupation, and if that was to be done the style changes would have to be in things that make less difference to the bees. The shallow hives simply had to go, and cellar wintering took a back seat. It began openly to be advocated that bees must have protection in winter to do well, and spring stimulative feeding was recognized by the younger and better beekeepers as a fool stunt.

This put the fraternity in a bad way, for it looked for a time as if there could be no more of the style business. But the bee business is immortal and will not be downed, even by a crisis such as I have described in my feeble way. I wish that I could make you realize the danger that then confronted our cult. Some of the more imaginative of the beekeepers finally hit on the solution of the difficulty, and it was a most happy solution. Why not go back to some of the early styles and have them all over again? The same old ideas of practice are reshaped annually, why not go back too in the matter of style? The women, after whom we have patterned our affairs, have tried bustles several times, each time with success.

So we went back to real hives, all but a few of the more stubborn ones. Then to get styles we took up first the matter of shipping bees without combs. That made a big hit. It had been tried out thoroly and found not to be a good practice for the usual circumstances, but back it came. All sorts of new cages were devised, every conceivable plan for feeding the bees in transit was brought out, and beekeepers were again happy.

Now, I want to call your careful attention to something which is very vital to the perpetuation of the fraternity. Now that we are driven to leaving out of the styles the fundamental things in beekeeping practice, it is harder to think up a new thing every year. Whether we want to or not, we must keep our styles longer. It is just like the situation that has arisen on account of

the war. The women must, to be patriotic, wear their clothes until they are worn out, style or no style. Therefore it is up to us loyal beekeepers to keep our styles until a new one can be brought to the front without much harm.

We must uphold the styles at any cost.
Phil Franklin.

A VISIT AT HOME OF E. ELTHORP

A Statement of His Ideas on Disappearing Disease, Swarming, Feeding, Etc.

At various times during my visits to New York State beekeepers, I had been told that I should meet Mr. Elthorp—that he is one of the best beekeepers in New York, and that in profits per colony he ranked high. Mr. Elthorp is on in years, and has a fine farm with many modern improvements.

Mr. Elthorp's experience covers some 39 or 40 years. He kept over 400 colonies at one time, and all in one apiary. The old Quinby hanging frame cut down to ten inches is used, making it practically a Langstroth frame, except that the eight combs used are equal to a nine-frame Langstroth. He winters all his bees in one cellar.

Fortunately I found that Mr. Elthorp has had experience with the disappearing disease—this (to us) new bee disease which has been far too prevalent to suit our comfort of mind, and the outcome of which is viewed with some anxiety at the present time. We should like to find out what struck us and how hard we are likely to be hit in the future. Well, Mr. Elthorp stated that he first saw the disease about 20 years ago.

When the colonies were strong about swarming time the desire would show itself by the bees coming out in large numbers on the grass, rushing from the hive with wings distended and somewhat separated. It lasted only a few days, but it decreased wonderfully the number of bees to a hive. He had attributed it to hot weather, having detected it two or three times since at widely separated intervals, but always during hot weather. While on this subject it might be well to mention here that, upon questioning Charles E. Stewart in regard to this disease, he said he first noticed it 15 years ago at the time of clover yield. He, like myself, found it worse in damp weather.

Returning to Mr. Elthorp's management, and bearing in mind that he runs all his bees in one apiary with undoubtedly enough work to keep one man busy, he has allowed natural swarming, and has produced comb honey. He has tried to keep increase down by hiving swarms after they came out, setting the new swarm alongside of the old, and then in the afternoon, when the swarms quieted

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down, putting two into one, or three into two. If he united two he would shake a few bees back into the parent colony. Then after seven or eight days he would remove all but one queen-cell from the parent colony, thus preventing second swarms. In this way he kept every colony strong, and he could run every one for comb honey.

When feeding for winter he aimed to do this at one operation about Oct. 1. He stated that if the feeding were done in one night the bees would put the food into the brood-nest, and after a few warm days distribute it as they would stores gathered naturally. Feeding, Oct. 1, 10 pounds of sugar to 6 pounds of water, and cellar wintering the bees, he had never found a colony starved in the cellar, even if they had no natural food; but in such a case they had to be given stores pretty early in the spring.

Asking Mr. Elthorp if he thought 16 pounds of syrup per colony enough food if the bees were wintered outside, he said he did not know, but doubted it. Of late years Mr. Elthorp has not kept so many colonies of bees. One of his best years was 1916, when from 125 colonies, spring count, he secured an average of 175 pounds of comb honey. On the other hand, Mr. Elthorp has sometimes had a total failure.

Mr. Elthorp is in favor of letting the bees have ample stores for breeding rather than stimulative feeding. This is a conclusion after making several careful tests. He said there might be localities where it would pay, but in his section there are too many cold, cloudy days, and it does not pay to disturb colonies unless the day is quite warm. When asked if the bees would quiet down before morning if fed at evening, he said, "Yes, but the feeding breaks up the cluster, and in that way a lot of warmth is lost from the brood-chamber." When asked if this would be as much the case when the colonies were packed, he said, "No; I am in love with having bees spring-packed as you have yours. We need that kind of packing for them."

R. F. Holtermann.

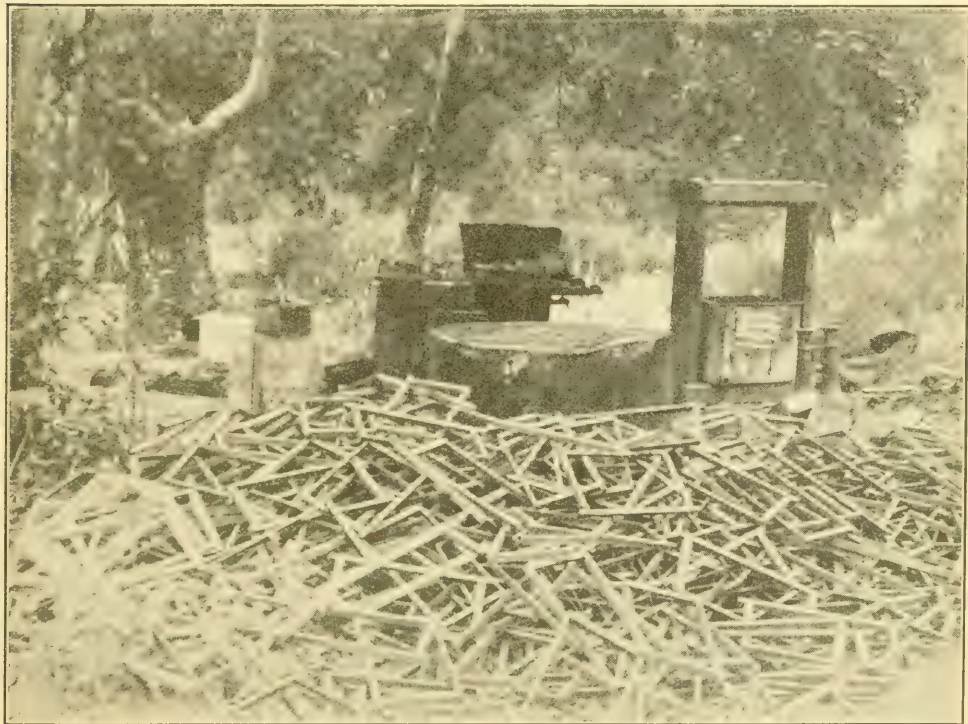
Brantford, Ont., Can.



A HOMEMADE WAX-PRESS

How Six Hundred Pounds of Good, Marketable Wax Can be Rendered in a Single Day

Blaine Elkins, at Fillmore, Cal., where the sage is at its best in good seasons, made for himself a mammoth wax-press out of some pieces of hard-wood timber and plank,



The brood frames in the foreground show that Mr. Elkins has done some work.

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some long bolts which the blacksmith made for him, and some large-sized jackserews. He had an idea that, if a small wax-press would turn out a certain output, one of giant size ought to turn out a correspondingly larger amount.

How the Wax-press Was Made.

He first secured some very large jackserews—the largest he could get. Next he purchased some oak plank 3 inches thick and cut two pieces of timber 5 feet long and two pieces 3 feet long. These he held together with four long bolts as shown in the accompanying illustrations. He then had a large galvanized tank made, and a series of wooden slatted frames to hold the “cheeses” bound in burlap.

His pans to receive the wax were made out of common five-gallon square cans, cut on a vertical line, making two shallow oblong containers. With a dozen of these he was then ready for work.

With a large circular tank shown in first figure he melted his combs, and proceeded to squeeze out slumgum in the form of big cheeses with his large jackserews. Not content with giving the cheeses an ordinary



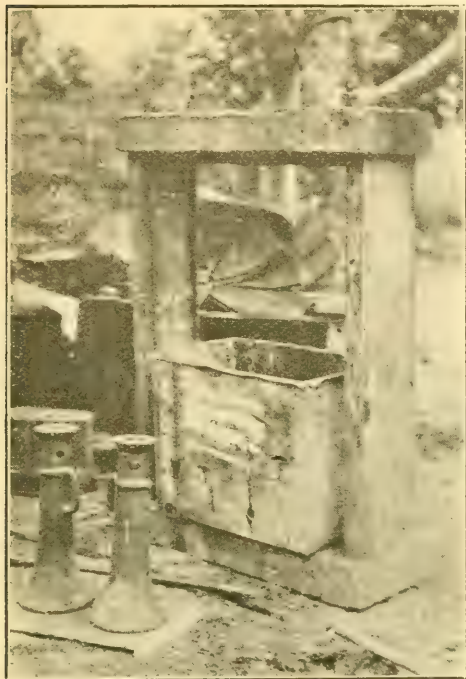
The oblong tin pans made out of five galvanized square cans cut in two lengthwise. These, said Mr. Elkins, made as good cakes of wax as anything that could be desired—just right for marketing purposes.

squeeze he used an iron bar 6 feet long, put it thru the heads of the jackserews, and



A general view of the wax-rendering outfit with the slatted frames on the left. A great deal of work can be done outdoors in California, for there is no rain to amount to anything except during one or two of the winter months. Mr. Elkins stands on the left, holding the long bar, and Mr. Sweet, of the A. I. Root Co., who had come down to look over the machine, is on the right. The tin pans are shown in the foreground.

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Mr. Elkins' giant wax-press. The framework is made out of three-inch plank one foot wide, and of suitable length. The whole is held together with four long bolts on each side. The squeeze or pressure is secured by means of large jackscrews that can be obtained at any large hardware store.

with this powerful leverage he put on all the pressure he could. One would think he would break the machine, but he didn't. Mr. Elkins believes in high pressure when it comes to wax-presses. When he got his work well organized, he said he was able to turn out about 600 pounds a day.

The other illustrations show the complete



Where the sages grow in Elkins Canyon, one of the prettiest canyons in all California.

outfit—the wax-press and the big pile of frames from which he had rendered the combs. Where the frames were properly made he could use them over again.

Why Large Press Was Needed.

It is, perhaps, needless to say that such a large outfit would not be needed in an apiary where there had been no foul brood. When Mr. Elkins found his bees had disease he made up his mind to do a thoro job in cleaning. And clean up he did, for he melted everything, and now has only clean bees in his canyon.

E. R. Root.



CRITICISM ON ROOT'S CELLAR

Objects to Intake and Chimney. Says Shape of Cellar Immaterial

Having read Mr. Root's interesting article on "How to Build a Bee Cellar," it would seem to me that he has omitted some important factors necessary in the construction of a cellar that will, under varying conditions, insure successful wintering.

First, if the chimney were built 30 feet or more in height so as to create a draft, the ventilation would be more economical and much more effective than by use of an electric fan. A chimney works automatically, the movement of the air increasing with an increase of temperature within the cellar; so with a larger number of colonies there will be a correspondingly stronger current, and if for any reason the bees should tend to become restless and generate an undue amount of heat, the increased current will automatically hold down the temperature. An eight-inch flue is about right for 100 colonies in a cellar 16 by 20 feet. It would certainly seem inadequate for 600 colonies.

If air is warmed its capacity for moisture is increased, and it, therefore, tends to absorb and carry off moisture. If the air from Root's warehouse contains a normal or an excess amount of water vapor and is passed into a cellar whose temperature is lower, the tendency will be toward condensation, making the cellar damp. After more than 10 years' experience in cellar wintering of several hundred colonies with an average loss of less than one per cent, I am of the opinion that there is no better way of supplying air to a bee-cellar than by means of a properly constructed sub-earth intake, which modifies the temperature of the air taken in without adding to its moisture. This intake should be at least eight inches in diameter for 100 colonies and correspondingly larger for a greater number. Of course, it should enter at or near the floor. The outlet into the chimney should also be from the bottom and on the opposite side or end of the cellar. I have both openings

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as shown in your figure, page 638, October Gleanings, but find the upper one of little use and now keep it closed.

I have found that with a bee-cellar under a honey-house, a few inches of sawdust serves the same purpose as several feet of earth over the top, and is more easily constructed. In cellars made to hold 100 or 200 colonies the shape of the cellar makes little difference, as it is easy to regulate if desired, and the temperature ordinarily need not vary more than two or three degrees during winter. E. S. Miller.

Valparaiso, Ind.

[Lengthening the chimney would, no doubt, be a good thing.—Editor.]



BEES, HIVES, AND TIME

Three Factors Besides Location That Affect Amateur Management in an Apiary

Location is admittedly the most important single factor in apiary management and to the professional beekeeper it is the only thing that really counts in his plans for the season.

In the case of the amateur, however, often struggling to get a start in beekeeping, there are three other things to be taken into account when giving him advice as to the best system of management; the number of colonies of bees he has, the amount of supplies and spare hives he has, and the time he can devote to his bees.

If he has plenty of bees, few spare hives, and limited time, he will do well to hold the colonies together as far as possible and thereby concentrate his efforts on producing honey. If he can be on the spot or near at hand, natural swarming will probably serve his needs and he can have the swarm on the old stand and then gradually throw the full force of bees back with it by placing the parent colony first on one and then on the

other side of the new swarm. Whether for comb or extracted honey this procedure will give a great deal of honey and a small amount of increase. If the beekeeper has to be away from his bees the same plan can be adopted by making shaken swarms, whenever well-advanced queen-cells show that swarming is anticipated, cutting the cells to one a week later. If his time is very limited, he would be well advised to run for ex-

tracted honey, leaving it all on the hives till well ripened; but if the time is available comb-honey can be produced as well, perhaps better, by this system.

Suppose on the other hand, he is in the position of having but few bees and plenty of supplies. His better plan will be to concentrate upon increase, putting off till the next season his hope of getting much of a crop of honey. He will build up his bees to strength and then divide upon the nucleus plan, buying his queens to save the valuable three weeks that would be consumed in rearing and mating them. We shall remember Dr. Miller and his 56 colonies, made from



She's a Manitoba beekeeper, too.

nine in the spring, with the help of plenty of supplies, adequate time, and last, not least, Dr. Miller.

In many districts there is a brisk local demand for bees, and further there have been so many disappointments in the package business that the local demand is likely to increase rather than diminish. The beekeeper is often perplexed as to whether he will do well to sell colonies or make more by keeping them. Generally speaking, it is a good thing to have enough bees to keep one's equipment fully occupied and producing, and to have enough equipment to keep one's bees adequately supplied.

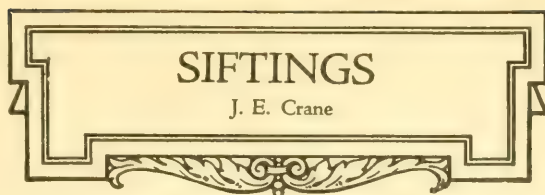
A beginner will do well to get first a clear idea of how many colonies he could look after, how much increase he would like to make, and so on; and then plan.

Sturgeon Cr., Manitoba. H. Sanders.



Mr. Sanders at work.

ALMOST the first thing I did on receiving Gleanings for November was to look for "Stray Straws." Not finding them I turned to the editorials to learn of Dr. Miller's illness. May I speak for and hope with a multitude of others that he may soon be strong and well again.



After seeing our own bees at work, a year or two since, on wild carrot we can readily believe E. R. Root's statement (page 711) of the way bees work on the flowers of parsnips and celery where the conditions are favorable.

There is again much trouble in beekeepers' getting enough sugar for feeding bees. As there has been but little honey gathered in this section since July 20, it looks as tho there would be a heavy loss in bees from starvation the coming winter. We lost two or three before we began to feed in September.

H. B. Parks, on page 728, refers to the larvæ of the wax moths working on aluminum combs. On taking our own lone comb out of the hive the last of August and leaving it in a warm room, we found that the worms started on it the same as on wax combs, but of course, did not do as much damage as tho it was all wax.

Already we notice the demand for honey is on the increase, as people are calling almost every day for a few pounds of honey, quite content to take unfinished sections if they can only get it. There is very little rationing of sugar about here, as there is none at the grocers' to ration. Bottled honey is in greater demand by the wholesale grocers than for some time past.

"The winter entrance should not be wider than 2 inches by $\frac{3}{4}$," says editorial, page 707. I am right glad that a small winter entrance is being appreciated for outdoor wintering in well-packed hives. The folly of making a hive warm on five or six sides, and then leaving a large entrance for the cold winds to blow in, has been apparent for some time.

The cause of the shortage of sugar is of great interest. Was it caused by the prohibition of alcoholic liquors or by the shortage of sugar last year or some other cause? There is reason to believe that prohibition has had much to do with it. Howard Van Tracey, an official of the Holland-St. Louis Company, declares that sugar is replacing liquor, and that the per capita consumption of sugar has increased from 84

to 104 pounds. If this is so we have little cause to worry; but if over 20,000,000 pounds of sugar or its equivalent in honey is to be added to our annual bill for

sweetening, then beekeepers should let it be known that honey is better than sugar for this purpose.

That little experience related by Grace Allen, page 727, telling how she discovered a can of sorghum because "Honey" was printed on it in large type, should give beekeepers a hint as to labeling their honey. Whether on neat cartons or larger cases let the word "HONEY" appear in large, clear type so it can be read across the store or street; and you can add in smaller type, if you wish, "It is better than sorghum syrup or sugar or corn syrup or 'Americose,'" a new liquid of almost the exact color of a good grade of honey and about as sweet as glucose.

That description of Balkan bees on page 721, by Francis Jager, stirred my enthusiasm as much as reading about Italian bees did nearly 60 years ago. Think of bees thriving and filling their hives when there are no or but few flowers within six or seven miles, gentle withal and quiet on their combs and not given to robbing. How many Italian colonies could compete with those Balkan bees? What an advantage to have bees that will collect honey from flowers seven miles from home. Some Florida beekeepers tell us their bees will hardly go two miles for honey, and they have good Italians too. Doubtless the dry, warm, even climate of southern Europe has much to do with the distance bees can fly in those countries.

The United States Department of Agriculture informs us that a new sweet is being now manufactured in commercial quantities and sold at from seven to nine cents a pound, barrel lots. In addition to its being a sweet malt syrup, "it has a delicious flavor somewhat resembling honey, which adds much to its palatability and its value as a sugar substitute." "Malt sugar syrup looks very much like maple syrup. It can be used for everything that cane sugar is used for. While its use on the table may not be as convenient as sugar, it is a most excellent substitute for table use when sugar is not to be had, as it not only provides sweetness but is equal to sugar in food value." It is said that the breweries can be very quickly made over so as to be adapted to manufacture it.

The sample of Americose we have received may be malt sugar, which we found bees would take in place of honey, and it may prove of value for winter feeding.

WHEN I went up in the air in September, literally not figuratively that time, the gentleman who has paid my bills for more than 20 years said, "I am willing to bet \$25.00 you will tell your Gleanings friends about it." "No," I replied, "not that I wouldn't like to, but I fail to see how I could trail an airplane flight across a food page, do you?"

Perhaps another thing that deterred me from writing about it was the fact that my father, in alluding to my venture in the October issue, called me matronly and spoke of Gleanings and me as babies nearly 50 years ago. Now, father, you may take pride in the fact that Gleanings is getting on, and you may even tack on a few years, in a loose manner of speaking; but don't you know that women are different? You have been calling Gleanings and me nearly half a century old ever since we turned forty. Your habit of exaggeration pains me.

And how I hate that word matronly, an unreasonable feeling since I am proud to be the mother of three children. But somehow the word "matronly" conjures up a vision of a woman with a grim, determined face, a double chin and bulgy figure with a tight-fitting waist. A matron belongs in an institution, insane or otherwise, not a home.

But to return to my subject, it was Mary Roberts Rinehart's delightful article, "The Sky Is The Limit," in a recent Post which provoked me to leave the subject of food temporarily. When she wrote an account of a trip to Havana a few years ago I wanted to rise and say, "Now Mary, you are not fair. You have told all the drawbacks and omitted so many delightful features." You see I had just been down to Havana myself. Having just been up in the air too, I cannot feel that she quite does air travel justice. Why, I wouldn't exchange my little fifteen-minute experience for her four flights, stunts, long distance and all, for the simple reason that she evidently did not have half the enjoyment I did, altho I do covet those stunts.

I suppose everyone has certain beautiful dreams which come to them again and again from their youth up. I cannot remember when I was too young to dream of flying, of propelling myself thru space by will power, of soaring thru the air and viewing the landscape from above. Pictures of angels with their inadequate wings always fascinated me as a child. For years I have promised myself that when the children were old enough to get along fairly well without a mother I was going to have an airplane joy ride.

In August our nineteen-year-old son wrote back an enthusiastic account of a flight he had enjoyed, without our permission, in a hydroplane at Atlantic City. He told us

A BIRD'S-EYE VIEW

Stancy Puerden

then came the county fair with a visiting airplane which was advertised to take up passengers.

When the Puerden family reached the flying field at the edge of town that September afternoon the weather did not look very promising. We watched one passenger soar away, and then it began to rain and we all went home and it occurred to me to wash my hair before we went back to our lake cottage, where we had been spending some weeks. Midway in the drying process, which I was facilitating by sitting before an electric fan, father came in and said, "When are you going up? It has stopped raining." Not having said I was going up, I made a rather bewildered reply which father, being more than a little deaf, seemed to take as saying I intended to fly immediately, and so he said, "I will go and notify all the neighbors. They will want to see you go up." The neighbors all being relatives, it struck me as rather indecent that they should take such pleasure in seeing me risk my neck. Then my two boys came in, and they and their sister looked so eager that I decided that they should think they had a brave mother for once, and I hastily pinned up that damp hair and announced that I was ready if they could find their father. Incidentally, if you want to dry your hair in a hurry let me recommend an airplane ride, without a helmet.

During the few minutes while the little preliminary details were adjusted I kept saying to myself, "I am at last going to have the experience that I have wanted all my life. This is going to be the realization of hundreds of dreams." Even the signing of the statement that I absolved the aviators of all responsibility did not trouble me. I was blissfully dazed. But the prospect of climbing to that inaccessible cockpit before a crowd was not pleasant. I need not have worried. My nearest relative by marriage picked me up and put me over the high side with as much sang-froid as if he were in the habit of lifting his wife into airplanes. As the assistant strapped me in he said, "Don't touch any of those levers." Evidently I showed alarm, for the pilot said reassuringly, "It will do no harm if they touch you. He just means you must not try to take hold of them." Did that nice boy take me for an idiot?

Then the assistant whirled the propeller, a mighty wind sprang up, we hesitated for a moment and then rushed lightly up grade across the field, gathering speed as we went. I had dreaded the bumps in that rough field; but there was not the slightest sensation of

the Curtis Company had taken up 100,000 people without a single casualty. Thereupon I began planning a future trip to the nearest Curtis field. And

jolting, as there is in an automobile on a rough road. It was so smooth that it was impossible to tell exactly when we took the air. It was glorious. It exceeded all my dreams. Language is totally inadequate to describe the wonder of rushing thru the air, gradually circling higher and higher. I remember thinking, "If I never get down alive, at least I shall have been blissfully happy in my last moments."

Presently the pilot turned around, smiled sociably thru the celluloid wind shield and started a conversation. I wanted to tell him that altho his passenger might look insignificant, four people on the field below valued her highly and he better watch his driving. His voice came back quite distinctly above the whirr of the motor, but when I attempted a polite reply there wasn't the slightest sound. That rushing wind must have forced my voice right down my throat. He had the advantage because his back was to the wind when he spoke to me. "Now we are going over your home," he told me. Sure enough, there was our house, directly beneath. We were flying comparatively low at that time and everything was beautifully distinct and distinctly beautiful. Sometimes I fret because the lawn is not mowed as often as it should be; but, from above, it and the shrubbery looked as trim and neat as one could wish. In fact, the town and surrounding country with its forest trees were more beautiful than I had imagined they could look.

Mrs. Rinehart said the California landscape was not beautiful from an airplane, that towns were hideous from above. Oh, Mrs. Rinehart, do come to beautiful Ohio to fly next time. You went up in the wrong state, or was it state of mind? Maybe that banana lunch gave you indigestion. I imagine I know where part of the difference was. Going up in an airplane flattens out a landscape amazingly. The beauty of Ohio will stand the flattening process. Her beauty is in her complexion, so to speak. California, whose beauty is largely in her contour, her mountains and valleys, probably suffers much from the flattening. Also I was fortunate enough to go up after an unusual amount of rain, for the season, and everything was luxuriantly green. California, after her rainless summer, was dry and brown except in irrigated spots.

And whatever may be said of other towns, Medina was anything but hideous from above. The houses were nestled among trees; the lawns were green velvet; shrubbery softened outlines; and if there were any untidy back yards, they were not in evidence. The farms cut up into fields of different colors and the roads converging in the little town gave the landscape a maplike look, it is true, but such a glorified map. Even foundries and manufacturing plants looked different and interesting. They tell me that, altho I was not quite the first Medina County woman to fly, I was the first to fly over my own county. I imagine flying

over a country with which you are familiar is much more interesting than flying over a strange region. It is such fun to try to pick out familiar landmarks from above, and to watch them draw up together as you climb higher.

After being in the air some minutes, perhaps when we were at the highest (wasn't it a shame I never knew the altimeter was right in front of me until I came down?), we seemed to be suspended motionless in space, between earth and sky, the landscape slipping smoothly beneath us, turning in an accommodating way to show its different beauties and occasionally tilting up on the right hand or left. It was difficult to realize we were rushing thru the air and the old earth was just as steady as usual. About that time the pilot said, "Now we are going over the field where we started." It occurred to me to gracefully wave my hand to let my friends know I had not slumped down in a faint. By that time I had discovered it was not necessary to keep my 117 pounds avoirdupois rigidly motionless in order to preserve balance. The machine seemed every bit as steady and dependable as our old family automobile. But as I attempted to wave my hand that afore-mentioned rushing wind carried it clear around back of me. It didn't matter. If I had waved a bedspread I don't suppose those little human insects on that field far below could have seen me.

The pilot seemed anxious to instruct me. He said, "Now watch the tail while we turn." I did. Then he showed me how he went up or down. Finally he said he was going to stop the motor. That was the culminating bliss of the whole 15 minutes. The swoop thru the air without the loud purr of the motor is like the soar of an eagle. If ever the Puerden family owns an airplane, I hope mufflers will be fashionable and the boys will not want to use the cut-out when they take mother for a ride.

One always has to come to earth after a beautiful experience and this was no exception. And I can bear witness that while it is joyfully thrilling to fly yourself it is not exactly joyful to stand on the field below and watch your husband and children fly, one at a time. Then is when your imagination misbehaves. When the great bird carries off your little twelve-year-old daughter, turning to smile back, you feel like Herod.

But they all came down safely, and if the family purse was light the family heart was still lighter.

Twenty years from now it may be as difficult to find anyone who has not been up in an airplane as it is now to find one who has not ridden in an automobile. Travel by water is necessarily limited to certain regions. Railroads cannot cross the ocean. But air encircles the earth and offers unlimited possibilities to travelers of the future, and I believe the time is not distant when we shall all consider air travel not only the most delightful but the safest.

SUCH an interesting sideline I have just met! Yet perhaps that isn't quite accurate, either, for really I first became acquainted with him several

years ago, but somehow didn't become aware of his sideline beekeeping activities until last week. At the outset, moreover, let me frankly admit the rather considerable meagerness of my present information. But he himself is so very interesting, so downright charming and lovable, that I cannot resist sharing him with all other sideliners.

And such a delightful background! in fact, you can't separate him from his background. It is a part of him. Whoever knows one knows the other. In the same quiet old village where his grandfather was vicar and lived and died, he himself, Gilbert White, was born in 1720; and there, except for a few young years during which he obtained his degree at Oxford (like his grandfather before him), and became a Fellow and then a Junior Proctor, he lived until his death in 1793.

Great things were happening during those years—even as in these; England lost the American colonies and gained India and Canada. But Gilbert White lived peacefully on in his tiny bird-haunted village, "more interested in the fate of his tortoise Timothy and the coming of his swallows, than in the struggles of European nations."

About 50 miles southwest of London, in the far eastern corner of the county of Hampshire, the parish of Selborne lies, with a "vast hill of chalk" and a sheep down and a high wood and, at the foot of the hill, "one single straggling street in a sheltered vale." This street and its houses is the village of Selborne. A parish of "stiff clays" it is and "warm crumbling moulds," of broad-leaved elms or "wych hazels," lovely beech trees, ancient yews, and vast and venerable oaks; of "infamous roads" and deep wells of "fine limpid water," which unhappily does not "lather well with soap!"

Near the church in the center of the village, in the days of Gilbert White, was an ancient oak with "huge horizontal arms," and around it were built "stone steps and seats above them" where on summer evenings old people "sat in grave debate" while the young people "frolicked and danced before them." (Oh, the eternal joy of youth in every generation and every land!) The monotony of winter in the isolated village was occasionally broken by weekly concerts—fiddles, flutes, hautboys, bassoons—"to the great annoyance of the neighboring pigs." "We abound with poor," wrote Gilbert White to a friend, "many of whom are sober and industrious, and live comfortably in stone or brick cottages. * * * *

Beekeeping as a Side Line

Grace Allen

The inhabitants enjoy a good share of health and longevity; and the parish swarms with children."

There it was that the gentle naturalist lived

so long and so quietly. No one noticed him much. He never married; so when occasionally he was without a housekeeper, he had "nobody to make whipped syllabubs." His days were spent in making observations (instead of syllabubs); taking down countless notes about all natural objects, birds, trees, reptiles, gypsies, cobwebs, rocks, storms; compiling lists of Birds of Summer Passage and Birds of Winter Passage, and writing his now famous letters on "The Natural History of Selborne," letters filled with such grace and indescribable charm that, like Walton's "Compleat Angler," they are now literature—and deathless.

After he had gone, and had been laid to rest by his grandfather near the old church by the still older yew tree, his fame began to spread. Admirers came visiting the little village he had immortalized, or, as we say today, that he had "put on the map;" but no one remembered much about him. One old woman, who was only a child of eleven when he died, remembered that "he was a quiet old gentleman with very old-fashioned sayings—very kind in giving presents to the poor;" while another villager said of him only that "he was thought very little of till he was dead and gone, and then he was thought a great deal of."

Only by the exercise of the sternest self-control, strengthened by a wholesome respect for the Editor, can I refrain from copying extract after extract from this old Natural History, written with the definite directness of the scientist, the ease and learning of the Oxford scholar and the quaint formal style of the eighteenth century; and revealing thru every line the gentle, rich, intensely interesting (because intensely interested) personality of the man. But here is one letter entire, tho by no means the most interesting, except for its apiarian squint.

"To The Honorable Daines Barrington.

"Selborne, December 12, 1775.

"Dear Sir:—We had in this village more than twenty years ago an idiot-boy, whom I well remember, who, from a child, showed a strong propensity to bees; they were his food, his amusement, his sole object. And as people of this cast have seldom more than one point of view, so this lad exerted all his few faculties on this one pursuit. In the winter he dozed away his time, within his father's house, by the fireside, in a kind of torpid state, seldom departing from the chimney corner; but in the summer he was all alert, and in quest of his game in the

fields and on sunny banks. Honeybees, humblebees, and wasps were his prey wherever he found them; he had no apprehensions from their stings, but would seize them *nudis manibus*, and at once disarm them of their weapons, and suck their bodies for the sake of their honey-bags. Sometimes he would fill his bosom between his shirt and his skin with a number of these captives; and sometimes would confine them in bottles. He was a very *merops apiaster*, or bee bird; and very injurious to men that kept bees; for he would slide into their bee gardens, and, sitting down before the stools, would rap with his finger on the hives, and so take the bees as they came out. He has been known to overturn hives for the sake of honey, of which he was passionately fond. Where metheglin was making, he would linger round the tubs and vessels, begging a draught of what he called bee-wine. As he ran about he used to make a humming noise with his lips, resembling the buzzing of bees. This lad was lean and fallow, and of a cadaverous complexion; and, except in his favorite pursuit, discovered no manner of understanding. Had his capacity been better, and directed to the same object, he had perhaps abated much of our wonder at the feats of a more modern exhibitor of bees; and we may justly say of him now,

* * * * * Thou,
Hadst the presiding star propitious shone,
Should'st Wildman be.

"When a tall youth he was removed from hence to a distant village, where he died, as I understand, before he arrived at manhood.

"I am, etc."

(Can anyone, by the way, enlighten me as to the lines White quotes in this letter? "Metheglin" sent me to the dictionary, where I learned it is "an old-fashioned beverage, usually fermented, of honey and water." Perhaps you knew that; I did not. But notice the derivation of it! From the Welsh "meddyg," meaning physician, and "llyn," meaning liquor—oh, the sick in Selborne! And is there, outside of poetry and bees, a subject with more fascination wrapped in it than philology—the study of language—of which be assured I myself know nothing at all. Indeed, the very word "philology" itself has an origin like a caress—from the Greek "philos," meaning loving, and "logos," meaning speech.)

Then there is another letter, written two or three years later, full of the most delicious comments on echoes, which this dear old Oxford scholar seemed usually to test with Latin verse! Dactylic meter he found brought him back the most syllables on the echo, sometimes as many as ten, far fewer being returned when he used "slow, heavy, embarrassed spondee!" And should there be anyone today planning to play battledore and shuttlecock with old Latin phrases, with only an echo for a partner, let him take care to choose "a still, clear, dewy evening" when the air is most elastic, because the

"weather and the time of day have a vast effect on an echo; for a dull, heavy, moist air deadens and clogs the sound; and hot sunshine renders the air thin and weak, and deprives it of all its springiness; and a ruffling wind quite defeats the whole." Midway this lovely, Latin-strewn letter, White speaks of a certain "strange notion" of Vergil's that echoes are injurious to bees, and right gallantly he refutes it thus:

"This wild and fanciful assertion will hardly be admitted by the philosophers of these days; especially as they all now seem to agree that insects are not furnished with any organs of hearing at all. But if it should be urged, that tho they cannot hear yet perhaps they may feel the repercussion of sounds, I grant it is possible they may. Yet that these impressions are distasteful or hurtful, I deny, because bees, in good summers, thrive well in my outlet, where the echoes are very strong; for this village is another Anathoth, a place of responses or echoes. Besides, it does not appear from experiment that bees are in any way capable of being affected by sounds; for I have often tried my own with a large speaking-trumpet, held close to their hives, and with such an exertion of voice as would have hailed a ship at the distance of a mile, and still these insects pursued their various employments undisturbed, and without showing the least sensibility or resentment."

Apparently he made no particular study of bees, as these are the only extended references to them I have found in the letters. But how blessed we are to be able to add to our treasure this quaint picture of the scholarly old naturalist blowing his large speaking-trumpet, close by his hives, "with such an exertion of voice as would have hailed a ship at the distance of a mile!" Yes, in his beekeeping, he was strictly a sidelineer, this Gilbert White of Selborne. And how glad I am that at least in good summers bees thrive well in his outlet, where the echoes were so strong.

* * *

WHEN I MET DR. MILLER.

Aged 88

Sometimes a moment drifts across our days
Gold-freighted, and upon us thereby lays
Eternal gratuities: for, lo, it flings
Great gifts to us, rich, unexpected things
All gold: and our dull pathways evermore
Shine in the memoried splendor like some floor
Trodden in olden times by crowned kings.

I saw your face, and such a moment came.
The common air was glory and a flame.
Your presence made my heart to understand
The godly pride I felt to touch your hand.
Of gifts you gave unknowingly to me
A chain I wove and wear it royally—
Each mood and memory a shining strand.

I hold that moment yielded me a gift
Before which heart and soul and eyes may lift.
Thru all this life wherein we bungle so
The noblest, lordliest thing that we can know
Is goodness such as yours, and love of truth,
Aliveness, and old age surpassing youth!
God let you live a hundred years or so!



FROM NORTH, EAST, WEST AND SOUTH



In Northern California.—In regard to the closing of the season little can be added to our November correspondence. In the northern part of the State star thistle and curl yielded slightly more honey than was reported last month, and bees are going into winter far better than a year ago. During the year disease spread quite a little and will be a serious factor next spring. The central part got a light aphid flow thruout October, and here bees have gone into winter in excellent shape. South of Merced County, however, and extending to the Tehachapi, a vast expanse, that was once our banner honey section, always producing from 30 to 60 cars of honey, fell down this year to a mere production of about 6 cars. At the beginning of the year single-story colonies were selling at \$15.00 to \$12.00 per colony. Now hundreds of colonies—two-story ones—are being sold at \$4.00 to \$5.00 per colony.

The three valley local exchanges have been solving their first year's work in excellent fashion. The matter of assembling and grading the honey has been a new task and for the first year has been handled very creditably by the local boards and secretaries, in conjunction with the State Exchange. The problems of assembling, especially, are different in each local and must be solved by the directors in charge. In the Central Valley local it is becoming more and more evident that there is economy in establishing but two or three assembling points; and, furthermore, that honey should be graded (this holds true for all locals) immediately upon its delivery by the producer to the warehouse. There is a two-fold purpose in this: first, the grader can do his work faster and more accurately for the reason that the honey is in the liquid state; and second, when the honey once receives the official grade the State Exchange can then definitely base its 60 per cent advance on the honey. Heretofore when the producer has delivered his honey in the northern locals he has informed the local secretaries the grade which he believes his honey to be, and the State Exchange has advanced on this basis. This practice might be abused by the producer since the advance basis for the different grades varies several cents per pound. If the honey is graded upon delivery, it will, of course, mean one or two days' delay on an advance to the member; but, on the other hand, it is much better business in that the State Exchange becomes more secure. It also enables the Exchange to get a better line on the crop as it is being produced. This can be facilitated further if the producer will always be prompt in delivering his honey as it is taken off.

The State Exchange has sold but half the crop of its members and it appears that this has been a wise policy in view of the fact

that during the past few weeks honey has stiffened appreciably. It will continue to stiffen as indicated by the condition of the sugar market. Sugar stocks are in excellent shape and new high records are being recorded. The prediction today is that raw sugar will sell next year at 12 cents even if the equalization board be continued in office. It seems to be impossible to curtail the consumption of sugar owing to our "dry" nation where sweets are being so generally used as a substitute for alcohol. During the first nine months of the year the domestic consumption of sugar increased 18 per cent owing chiefly to wartime prohibition since July, as against a normal pre-war increase in American consumption of about 4 per cent per year. Again scarcity has been further increased by sending one-third of the Cuban sugar crop to England—a matter sanctioned by the equalization board. If we watch the sugar market we know pretty well the trend of the honey market. And now let us watch our bees closely next spring, for all the extra surplus we produce in 1920 will be worth while.

Modesto, Calif. M. C. Richter.

* * *

In Southern California.—As the season advances, more and more concern is felt among many beekeepers about the feeding of their bees. At present it is impossible to get sugar in any quantity. Some few apiarists have honey that they can feed. But even with a low grade of honey on hand, most of us hesitate about feeding it, unless it is an absolute necessity, as so much has been written about the danger of feeding honey where there is the slightest probability of there having been any foul brood in the apiary. There are some who are always ready to take a chance, but most of us prefer to be very cautious. Fifty clean colonies might do as well next spring as 100 diseased ones. I believe the bees over southern California in general are as light in stores as I ever knew them to be at any time during the past 25 years. One of our best beekeepers says that it will take 20 tons of sugar to winter properly the bees in his locality. And I am not sure that his locality is so much worse than some others.

Now, about feeders and the feeding of weak colonies. I have used many methods and now begin by cutting all of the colonies down to one story. I remove the two outside combs. Then I put, in their place, four common milk cans, which hold about one pound of syrup each. These cans contain straw or pieces of wooden sticks for the bees to alight on. I used excelsior at one time but found that many bees would be under and in the excelsior. When the cans were refilled, these bees would drown. The feeding-cans may be left in the hive until the colony needs more room in the spring.



FROM NORTH, EAST, WEST AND SOUTH



It is a great satisfaction to have one's experience verified by a man like J. E. Crane; that is to say, that sugar syrup fed directly in the combs will granulate much quicker than that which is fed in feeders and is moved to the combs by the bees.

The Riverside District Fair was the most successful ever staged in our county seat. All lines of agriculture were well represented. The Riverside County Beekeepers' Club had a splendid exhibit and again took the first prize with the San Bernardino County Club a close second. The Riverside Bee and Honey Company had a fine exhibit of all kinds of hives, fixtures, etc.

It is now two weeks since we had any rain. The grass has started over most of the lower valleys. The nights are cool, with occasionally a light frost in the more exposed places. Resin weed is reported as furnishing considerable honey for winter stores in a few very favored localities, but over the vast majority of ranges nothing at all is coming in. If this proves to be one of the seasons when the willow, manzanita, and eucalyptus yield, some nectar should come in from these sources during December, January, and February. Colonies with less than 10 pounds of stores may not survive, should the next two months prove cold and unfavorable. Many colonies are found at this writing (Nov. 5) with little or no brood. Usually our queens begin laying quite lively during December and by the middle of January have from three to five frames of brood.

The annual meeting of the Orange Belt Honey Producers' Co-operative Exchange was held in Riverside on Nov. 3. Secretary-Manager E. W. Horne reported \$65,000 worth of honey sold during the year and the Exchange in a most prosperous condition. Considering the fact that this has been one of our very poor honey seasons, it is a most satisfactory report. The election of directors resulted in the re-election of R. Powell of Riverside and L. L. Andrews of Corona for a three years' term. H. A. Wagner of Redlands, E. W. Horne of Riverside, and J. A. Mack of Rialto are the hold-over directors. Chas. B. Justice, manager of the State Exchange, gave a talk covering at length the workings of the Exchange since its inception a year ago. L. L. Andrews.

Corona, Calif.

* * *

In Michigan.—Arthur Sharrow of Plymouth, Mich., has taken a position with the office of the State Inspector of Apiaries. Mr. Sharrow will spend the winter traveling with Mr. Ewell in the holding of the two-day beekeepers' schools which are to be held in most of the counties of the lower peninsula. The following is the schedule of the Beekeepers' Schools for the month of December: Dec. 2-3, Gladwin County; Dec. 4-5, Ogemaw

County; Dec. 6-8, Genesee County; Dec. 15-16, Branch County; Dec. 18-19, Charlevoix County; Dec. 20-22, Antrim County; Dec. 30-31, Grand Traverse County. The beekeepers of those counties mentioned should keep in touch with their county agents, as they have charge of the schools and make all arrangements for the place of meeting and for the local advertising. For any information relative to the schools, call on your county agent.

The Michigan Beekeepers' Association now has 618 members.

On Oct. 28 a number of colonies were opened and it was found that drones were more or less numerous in all the colonies. This was indeed surprising, as drones are rarely seen here in colonies after the middle of September. On Nov. 3, it became necessary to open several colonies for a careful examination. In every colony opened brood was found in all stages, and in one colony eggs were found on three frames. All colonies were queenright. No feeding had been done for several weeks previous to this examination. This has been a unique experience, which cannot be attributed to the weather conditions as this has been a normal autumn. Any light on this subject would be appreciated.

The annual Convention of the State Beekeepers' Association will be held in the Chamber of Commerce, Lansing, on Dec. 9-10-11. The first session will begin promptly at one o'clock on the afternoon of the ninth. The following is a part of the program: "Experiences with Combless Packages," D. O. David, David Running; "A Season's Work with the Bees," O. H. Schmidt; "Two Queens in One Hive," Arthur Sharrow; "Honey Production," R. F. Holtermann; "Getting the Maximum Yield," Kenneth Hawkins. Report of the Committee on Co-operative Buying and Selling. E. R. Root of Gleanings and C. O. Yost, State Inspector of Indiana, will be present but their subjects cannot be announced at this date. There are several other speakers whose names are withheld now but will appear on the printed program. The banquet will be held on the evening of the tenth. The following is a list of Lansing Hotels: Porter, Downey, Kerns, Detroit, Fleming, Lennox, Butler, and Reogrand. These hotels are named in the order of the cost for accommodations, the most expensive being named first. Try to arrange to have a room reserved by correspondence in order to avoid inconvenience upon arriving.

East Lansing, Mich. B. F. Kindig.

* * *

In Texas.—The aftermath of the storm of September 14 reaches here in reports from the commercial beekeepers of that district. One party, 130 miles from the coast, but in the line of the storm, lost one outyard valued at \$2,000 and as yet cannot



FROM NORTH, EAST, WEST AND SOUTH



reach three other of his yards. One of the well-known queen-raisers tells of wading and swimming for miles to salvage the wreck of his outyards.

Thru a period of years many attempts have been made to find plants of such a nature that it would pay to cultivate for honey production alone. So far it seems that here only horsemint and sweet clover will pay. It is doubtful if sweet clover would pay if it were not also a soil-builder. This year three new legumes from India were tried, one of these, *Cicer arietinum*, bloomed from May 18 until June 19, but no bees visited it. A second, *Caján Indicum*, which is said to be a heavy yielder in India, grew very large and commenced to bloom October 15 and is now (November 6) in full bloom. Bees are working it very heavily. If this plant proves hardy or its seeds ripen, it will be a valuable addition to our flora as it will extend the length of the honey-gathering season two weeks. The third, *Crotalaria candicans*, has not as yet bloomed. It was our pleasure to have Dr. David Fairchild, Agricultural Explorer, Department of Agriculture, who found these plants in India, visit this station November 3 and 4. The fall sowing of horsemint and sweet clover is in first-class condition.

Every successful beekeeper is an observer of Nature. Here in the Southland where winter is almost unknown it is very interesting to observe the close relation which exists between insects, birds, plant, and weather changes. October 8 to 10, even though partly cloudy, was a good nectar period. The bees seemed to work more rapidly than ever before. Broom weeds, bonesets and asters were in profuse bloom. Large flocks of ducks and geese passed toward the south; meadow larks, blackbirds, sparrows, warblers, and even humming birds came from the north, not in flocks, but in swarms. He who was weatherwise knew what to expect. The morning of the 11th the norther arrived, and a temperature of 54 degrees, accompanied by a heavy rain, gave us the first taste of winter.

W. E. Jackson, who has been in charge of the field work of foul-brood control for the past three years, has resigned and leaves the work November 15. Mr. Jackson will engage in commercial bee work in Oklahoma.

The extension course in beekeeping given by the U. S. Extension Service Bureau of Entomology and A. & M. College of Texas co-operating will be held December 15 to 20 at San Antonio. Messrs. Phillips, Demuth, and Sturtevant, assisted by men from the College, will give the program. The extension department and experiment station are endeavoring thru their mailing lists, county agents, and bee inspectors to place an invitation and program of this meeting in the

hands of every beekeeper of the State. M. C. Tanquary, the new entomologist of the experiment station, will attend, and as one of the entertainment numbers will give an illustrated lecture on "Three Years in the Arctic." This is an account of the expedition sent out by the University of Illinois to Crocker Land.

In the last month there has been a decided change in the condition of the bees. Prior to and immediately after the Corpus Christi storm the prospects for a fall honey flow were never better. The storm itself damaged the honey plants to a marked degree, but the five weeks of rain which followed completely stopped the working of the bees. From September 19 to October 20 seven and a half inches of water have fallen, which is over twice the normal rainfall for this period. Immense areas of broom weed have bloomed and gone out of bloom without having been touched by the bees. Central Texas suffered more than the eastern part. Reports from the east of the Trinity indicate that there has been enough fair weather to permit the bees to store a nice surplus. The chapparal of southwest Texas responded to the rains, and many plants which usually do not bloom out of season bloomed with the others. Huijilla and three varieties of cat-claw were in bloom as late as October 26. Because of rains and cold this belated blooming period was of little value. The conditions are not serious now, but if the rain and cloudy weather continue much longer many beekeepers who extract closely will have to feed.

Director B. Youngblood of the experiment station has announced that M. C. Tanquary, Ph. D., will be the new entomologist to the station and as such will be State Entomologist and Chief Inspector of Apiaries. Dr. Tanquary is now assistant professor of entomology in the Kansas State Agricultural College at Manhattan and has charge of the investigation of insect pests on staple crops in the experiment station. The Doctor will take charge of the work in Texas about the first of the year, and, as he is a beekeeper, he will be doubly welcomed by the beemen of the State.

There are still quantities of honey that can be purchased in Texas. Beekeepers in the middle-west States who must buy feed for their bees should investigate this supply. If you are buying feeding honey you can obtain honey which is accompanied by certificates of freedom from disease germs. Gleanings for November says, "Those having honey known to be free from American foul-brood germs will find it the part of wisdom to use this for feeding their bees, no matter how high the price honey may now bring." The sugar now on sale, owing to the haste to supply the demand, is of inferior grade and is almost as much of a risk



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as honey bought on open market. The above supply of honey, which can yet be had at a reasonable price, should be investigated by bee-feeders before feeding raw sugar.

College Station, Tex. H. B. Parks.

In Ontario.—While weather reports continue to tell us each day of the very early winter in western Canada, and I presume the Northwestern States as well, here in Ontario we are having an unusually warm fall to date. Today (Nov. 10) I noticed geraniums and other garden flowers still blooming and showing no signs of having been injured by the few light frosts we have had so far. Certainly this is an unusual condition for us at this season of the year. I also noticed, when walking over a pasture field today, dozens of dandelions in bloom.

With mild weather and sufficient moisture to promote growth, fall wheat and the clovers in general have made a great growth this fall—in fact, some wheat is reported to be shooting for head, so rank has been the growth. But clover looks very well indeed, and the acreage in most of localities where I have been lately seems to be normal.

Sweet clover where grown for seed has given some very heavy yields, and, as the price is high, in many cases the yield for one year has been double the normal selling price of the land. A ten-acre field, two miles from our home, yielded seed that sold for \$2,300.00 a few days ago. This is only a sample of other returns. Needless to say, hundreds of acres of sweet clover will be sown next spring, as I personally know of many farmers who have purchased from 5 to 20 bushels of seed for next spring's seeding. Just how long the boom for sweet clover seed will last is a question; one firm's representative told me a few days ago that it was good for three or four years yet. This firm buys a great quantity of all kinds of clover seed each year. Another large buyer told me that two years would skim the cream off the business as far as high price for the seed is concerned. I do not attempt to make any guess on the subject, but it looks as tho beekeepers in many sections will have an opportunity during the next few years to test out sweet clover as a honey plant. While we shall welcome any real addition to the honey resources of the country, personally I will still cling to alsike as the greatest asset of the beekeeper for the present and the future. Its advent into the clover regions has been worth more to the beekeeping industry than all other sources of nectar combined—at least, that is the opinion of the writer of these pages.

Honey markets seem to be a bit firmer than 10 days ago, caused no doubt by the great sugar shortage and the advancing price of this staple. Buckwheat seems to be affected most, as it is quoted half a cent to

a cent higher in the wholesale market. Buckwheat honey is much cheaper than last year compared with clover honey; and just why is hard to understand, as the crop is the lightest it has been for years. Claims are made that a large quantity was held over from last year, but I have not been able to verify these claims one way or the other, reports having been very conflicting.

The men in charge of the apiary development work both at Guelph and Ottawa have in the past given valuable help in many ways, but for the immediate future it seems to a good many of us that a new line of work should be taken up in addition to the regular duties now attached to the positions. I refer to the matter of large queen-rearing apiaries where Italian stock highly resistant to European foul brood could be produced and sold to beekeepers at cost or even above that, as beekeepers would not complain if sure of getting the goods. This plan would hurt no one engaged in the queen-rearing business, as all can sell all the good queens they can produce. European foul brood is cutting very badly into the production of honey in many localities, and many queens bought promiscuously turn out to be useless in standing up against the disease. Many localities cannot produce purely mated stock, and that is where the government yards would be beneficial in being able to send stock of known resistant traits to queen when necessary. Some objections have been raised to the plan; one, as I remember it, was that pure mating could not be obtained near Ottawa where the Dominion apiarist is in charge. This could readily be remedied, for it would not take much funds to secure some location where few bees are kept, and the few that are near could soon be Italianized. The grants necessary to form a good queen-rearing apiary and pay for proficient help in managing the same, would be very small—indeed, it could be made almost if not quite self-supporting, as all queens produced could be sold as fast as ready for mailing, if beekeepers were assured of getting good stock. Much criticism has been made privately, if not in public, in regard to the apiary work at experimental farms being on too much of the fad-dist idea instead of the really practical—this, in particular reference to the work at Ottawa. Whether this criticism is justly founded or not I do not propose to say just now; but one thing I do feel sure of, is that a work like what I have briefly outlined would be the most practical and useful that could be undertaken, and the men that go ahead and make it a success, will have the gratitude of hundreds of beekeepers. I understand that the workers at Guelph are in favor of the scheme so far as it is practical with the material they have at hand, and I hope other leaders or teachers feel likewise.

Markham, Ont.

J. L. Byer.



It's fine beekeeping country along the Allegheny River Penn.

HEADS OF GRAIN

FROM

DIFFERENT FIELDS

**Why
"Pure Honey?"**

In advertisements, labels, and circulars pertaining to honey, the word "Pure" is frequently and inadvisably used. Too often do we see or hear the expression, "Pure Honey." As the honey might be impure!

Nobody is supposed to manufacture or adulterate honey, so why announce that any honey is pure honey. The one who adulterates honey should be branded with a hot iron, showing he is an outcast. That we know. But we have pure-food laws; and the word "honey" is sufficient to let people know that honey is honey. Why should anybody announce that his honey is pure? The expression announcing "pure honey" in advertisements should be eliminated, and all labels bearing the legend of "pure honey" should be destroyed.

There may be some who might take issue with me upon this subject, who might urge that in these days of imitations and substitutes there may be cases of adulteration of honey; but even then it would be unwise for a producer or dealer in honey to announce that his honey is pure. By all the gods at once, it is presumed to be pure!

In the British Museum there is, or was, an Assyrian inscription, translated by Professor J. Helevy, showing a Babylonian recipe—the only known specimen of an Assyrio-Babylonian prescription extant—in which the expression "pure honey" was used.

Yet there is no evidence that in the Babylonian days there was any kind of honey except pure honey; and today there is no other kind of honey except pure honey.

Why do labels and advertisements continue to use the hackneyed expression alluded to?

C. M. Elfer.

St. Rose, La.

Holtermann Answers Our good friend, Dr. Dr. Miller.

C. C. Miller, under "Stray Straws," page 586, September Gleanings, very kindly and gently gives me to understand that it is considered an act of cruelty to destroy worn-out and almost worn-out bees. He also states that it is an easy matter to separate such bees from young and vigorous bees.

To take up the last point first, let me say that I do not consider that a successful method of separating such bees. As soon as a bee locates herself she is liable, if moved away, to return to the old stand, and the removal of a hive to a new stand endangers the return of every bee that has located herself. I do not want to lose such bees and cannot see the solution to the problem.

As to the first point, I am a man who strongly dislikes to kill a chicken, and I would rather not eat the chicken than kill

it. I admit this is a matter of sentiment. Then for years I wouldn't, and now will not, throw a hook into the water to catch a fish; and to put a worm on a hook when the worm is alive (which it always is) is revolting to me; and as to minnows on a hook to catch a fish—well, I will say no more. When I see poor flies struggling on sticky fly paper, I am reminded that there is still much of the savage about us. Our boys used to chase squirrels and smoke them out of apple tree trunks, and I said, "Why not leave the poor things alone?"; but when the bees were packed in cases for winter, and these same squirrels gnawed holes (for they always make two in a case) in the cases and chased one another thru the cases, thus disturbing the bees and endangering their lives, I paid a boy 25 cents for every squirrel he shot near the apiaries. For the same reason, I would have no hesitation in quickly destroying the old bees of a colony; in fact, I would consider I would lessen their sufferings. I would consider it just as legitimate to kill them as to kill any stock on the farm, and I do not think that good, sound reason can back up opposition to the plan.

Brantford, Ont.

R. F. Holtermann.

**Got a Big
Crop in Chicago.**

My parents gave me on June 5, 1919, a hive containing bees for a birthday present. I put on 10 shallow frames, which were filled in 14 days with beautiful white clover honey. I then put on a comb-honey super and the bees worked so fast on sweet clover I added a third super underneath. These were filled the quickest

I have ever seen bees work. The hive was so crowded I put on the fourth super; and by Aug. 25, that was filled, making a total of 182 pounds of honey, worth 45c a pound or \$81.90—a handsome birthday present.

I consider this a wonderful record owing to the fact that the bees are in the city limits of Chicago, surrounded by factories, and have to fly far for their stores. A school yard is only 100 ft. from the apiary, and a factory of 900 employees across the street; but I have never



The conductor boy and his birthday gift.

HEADS OF GRAIN FROM DIFFERENT FIELDS

had a complaint. I am a conductor on the city cars and find ample time to devote to my bees. I consider it a very profitable and interesting sideline and find among the car men a ready market for all the honey the bees produce.

As we have recently secured the eight-hour day, father and I are planning to run an out-apiary next year.

Chicago, Ill. Tim O'Donnell, Jr.

Old Refrigerator Used for Hive.

This hive I made out of an old refrigerator. I boarded it up on the inside so that I can use standard Langstroth frames in it. The bottom compartment holds 20 full-sized frames and a super, and

making a success of anything is concerned, it is six of one and half a dozen of the other.

But what I want to say is this: After this gentlemen beekeeper had read the different ways of wintering published by some of our best beekeepers in the country, and in different States and sections, and had thought of his own State and section (which he should know all about), I think he could have doped out a method that would have suited him and assured him greater success than trying to copy after every State and country that he had been reading about.

A beekeeper of Canada or Wisconsin can tell his neighbor beekeepers how to winter their bees better than he can tell some one in Maryland or some other State. So I think that if Mr. Franklin had studied his own locality, and compared it with that of some other States, he would not have been in such a puzzle.

N. L. Jones.

New Church, Pa.

A Wide-awake Bee Club.

The Boys' and Girls' Beekeeping Club of Douglas County, Neb., is one of the best on record. On June 5, members of this club, their ages ranging



Refrigerator remodeled into a hive.

the upper compartment 10 full-sized frames and a super. I put the frames in crossways, and have a glazed sash next to the frames so that I can see the bees by opening the door behind.

Ord, Neb.

Criticises Phil Franklin.

After reading the Backlotter's story on page 652, October

Gleanings, in regard to wintering, it makes me feel like saying something in reply. I have seen people before now who thought everybody had brains but themselves. I hardly know which is the worse—that kind of man or one who thinks nobody has any brains but himself. Possibly, so far as



Taker of the first prize.

from 10 to 18 years, began beekeeping with one frame of brood, bees and queen in a modern hive. On Sept. 6, the contestants'



Apiary of the taker of second prize.

HEADS OF GRAIN FROM DIFFERENT FIELDS

work was judged. Leonard Mangold of Bennington received first prize.

From the one-frame nucleus, he produced two strong colonies of bees and 24 pounds of comb honey. The cost of his equipment to begin with was \$12.50. The 24 pounds of honey would easily sell for 40c a pound, amounting to \$9.60. The two colonies of bees are easily worth \$20.00, making a total net income of \$17.10 for the first year's work in beekeeping. M. D. Vreeland, Flor-

ence, won second prize; T. E. Grau, Bennington, third; Eggert Ohrt, Irvington, fourth; and C. Clinton Dunn, Omaha, fifth.

A larger club is anticipated next year. It is the object of this club work to encourage boys and girls to keep a few bees and handle them in the most up-to-date manner. It is possible for those youngsters not only to produce sufficient honey for home use, but make money besides.

Council Bluffs, Iowa.

A. H. Dunn.

Brood Diseases.—By Bill Mellvir

With apologies to Walt Mason.

Beekeeping's going to the deuce; diseases punk are breaking loose and microbes swarming by the peck now get the young bees in the neck. *Bacillus Larvae* by the ton is watching for a chance to run into our hives to kill the brood and change it into buzzard food. *Bacillus Pluton's* in the air, it lurks about us everywhere, and billions of these yellow beasts, on larvæ plump, are having feasts. This poor old apicultural boat, these days can scarcely keep afloat, and these destructive microbes punk will soon convert it into junk. Such tales as these I hear each day from some old time bewhiskered jay who's always shooting off his lip about the sinking of the ship. Cheer up! We heard the same old knocks when Langstroth steered us by the rocks and Quinby told us how to cure diseases by a treatment sure. In Middle Ages knockers beefed and said, "The sails must now be reefed, for foul brood's coming to destroy the bees and take from life its joy." And Virgil heard the same old breeze when he was working with his bees, and writing with the greatest care his book on bees, that dope so rare. When Aristotle first described the brood diseases, knockers cried: "The stuff is off, it's no use now, there'll be no honey for our chow." And Noah heard it as he nailed on moving screens that night he sailed. They said: "Why take the bees along when brood diseases put them wrong?" I fancy Adam raised a fog and kicked the cat and licked the dog, because a pesky brood disease was working havoc with his bees. Our ancestors who lived in trees no doubt got off the

same old wheeze. In gibbering monkey talk they whined of brood diseases, every kind. This good old ship will plunge ahead in spite of bugs and microbes dread; in spite of rusty grumbling hicks who register so many kicks. So let us put our hammers down, let's shed that unbecoming frown, and fight the microbes like a man and steer the ship the best we can.



This is Bill Mellvir himself.

QUESTION.—This past summer I had some American foul brood, and, of course, cleaned the hives as outlined in A B C, with apparent success. Now I don't find anything as to whether drone- and queen-cells are affected by American foul brood, but I found both diseased. I put a frame of brood in a queenless foul-brood colony and eight of nine queen-cells were dead. Also some of the drone-cells were affected.

Nevada.

G. H. Shippler.

Answer.—In both American and European foul brood, drone larvæ and queen larvæ may be affected. It is quite unusual, tho, to have so large a per cent affected as in the case of your colonies. This reminds us of an interesting incident that came to our attention this summer. A beekeeper grafted from what seemed a perfectly healthy colony, but which in reality had American foul brood. The next day he discovered what he had done and so watched developments. Part of the queens hatched all right, but a great share of them died after the cells were sealed, and it was found they were very ropy. Now those larvæ were no more than 24 hours old when grafted and must have been infected at that time, and yet developed until after the sealing of the cells before dying. The contaminated cells in the wooden cups were removed from the hive, and the nucleus that contained them showed no signs of disease five weeks later, at which time we learned of the incident.

Question.—My queen bees mysteriously disappear. I have had 30 colonies queenless this summer, and I am very anxious to know what has caused this trouble. Some of the colonies I had to requeen three times, and in each instance the queen disappeared after laying eggs for a period of two or three weeks. I allowed some of the colonies to rear queens for themselves; but not one of these queens matured into a laying queen, and I was finally forced to buy queens to requeen. I wish you would help me solve the mystery. It has given me a whole lot of extra work, besides a loss in money.

New York.

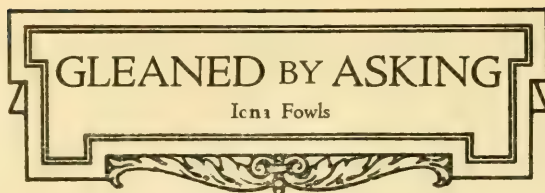
Edwin W. Frisby.

Answer.—Such a great loss of queens as you report we are unable to explain, but have had a number of similar reports from other beekeepers, some of whom think it is the disappearing disease. In our own personal experience with that malady there was no loss of queens. Perhaps some Gleanings reader may be able to throw a little light on the question.

Questions.—(1) If the syrup should be poured in the Doolittle feeder, would there not be danger of bees drowning? (2) How are bees prevented from making flight during a warm spell when the ground is covered with snow? W. L. Wright.

Connecticut.

Answers.—(1) If you fear that the bees may drown in the syrup, just throw a little loose grass or pieces of cork on the surface of the syrup. (2) Usually when snow is on the ground it is too cold for the bees to take a flight, but sometimes they do fly out and



become lost in the snow. The bees that are lost in this way, however, are much fewer than the number that would be lost if the entrances of the hives were

closed, for this stirs up the bees and gets them excited, increases the temperature of the hive, and brings about disastrous results.

Question.—I packed my hives, two in a case, giving each four $\frac{3}{8}$ and one $\frac{3}{4}$ -inch holes thru the outer case. I am a little doubtful as to the *inner or hive entrance*, whether it should be *left open the full width of hive or a contracting clear used*.

Pennsylvania.

Earl B. Hunt.

Answer.—The *inner or hive entrance* should be left open the full width of the hive.

Questions.—(1) October 5 I bought a box hive, heavy with bees and honey. I drummed the bees out into a ten-frame hive, with old drawn combs, except the center combs which are newly drawn, as I understand the queen likes them better. After the queen was in the new hive I stopped drumming and proceeded to put a queen-excluder "b" over the hive "a" to keep the queen below. Above this I put a bee-escape board "c" with the escape "d" removed so that the remaining bees, and later the young brood, could go below and also back and forth from and to the box hive "e." I was trying to get the honey transferred from "e" to "a" for winter stores. Was that a good way to get the honey carried below? (2) Would it have been better to put the box hive with the contracted entrance in front and let them rob it out? (3) Do you think it would have been worth while to wait three weeks for the young bees to hatch out? The queen had not been laying heavy at that time.

New Jersey.

C. Boudewyns.

Answers.—(1) Dark combs are greatly preferred by the queens as well as by the bees. Because of the cocoons left inside the cells, the old dark combs are much warmer during winter than are the new ones. In the plan that you use it would have been much better, had you left some brood below in hive "a"; otherwise, the bees might, on a cool night go above into "e" to keep the brood warm and not stay with the queen in "a." We have known queens to perish from this very reason. After the brood has hatched from the story "e," the bees will quite likely carry the honey down below; but, in the case of some colonies you will find that they are occasionally reluctant to do so. In such cases we have found it a help to place an empty body between "a" and "e." (2) We do not like your idea of allowing the bees to rob out that hive, for, in such a case you would lose all of the brood in the hives; and, more than that, it is not good for the bees to become so excited and stirred up in the fall. Also, if there chanced to be any foul brood in the neighborhood you certainly would not want the bees to get to robbing; for, if they once got started, they would be likely to find the foul-brood hive and rob that before they finished their

rampage. (3) In case there was but little brood in hive "e" you could probably have hurried matters up considerably by placing hives "a" and "e" both on a platform, leaving them so arranged that the bees could enter "e" only thru "a." If this could have been done the bees of "a" would soon have robbed out "e."

Question.—Is it common for queens to lay more than one egg in a cell? S. H. Hailey.

Tennessee.

Answer.—Queens often lay several eggs in a cell when they become old and practically worthless, but even a good queen may lay more than one egg in a cell when she first begins laying. If she continues doing this, however, she should be discarded and a better queen introduced.

Question.—Is there any satisfactory dip that can be used for bottom-boards? If a dip that is penetrating is used, it would eliminate the painting of the joints before nailing. I think this joint-painting pays. Geo. Harrison, Jr.

Maryland.

Answer.—In our own experience we have never found it necessary to paint the joints in the bottom-board. In fact, we have found that it hardly pays to paint them at all since they are not exposed to the weather, and we cannot see that those painted last any longer than those unpainted.

Question.—Do you know of any blind men who are in the bee business? If so kindly send any information you have in regard to them. I am trying this business for an experiment.

Alabama.

Wm. C. Smith.

Answer.—You doubtless know that Francis Huber, the Swiss naturalist, who lived 1750-1831, made many valuable observations concerning bees. He lost his sight completely when a young man. With the help of his servant, however, he made many valuable observations and experiments with the bees. It has been said that Huber was probably a better apiarist because of his blindness. We are unable to give you the address of any blind beekeepers, but possibly some of our readers may be able to do so.

Question.—I introduced a young Italian queen into a nucleus. The bees accepted her and she started to lay. In about three weeks the bees started queen-cells. I found the queen on a frame of brood, but she was very feeble and instead of being yellow she was almost white. What was the matter with her? Ervin Hogarth.

Ontario.

Answer.—We frankly confess that we do not understand what could possibly be the trouble with your queen. In fact, we have never heard of a similar instance. We wonder if it is not possible that the old queen that you introduced was killed, or died, and the one you saw later had just hatched. Queens just hatched are sometimes very light.

Questions.—(1) How long will honey keep or preserve foods and fruits of different kinds? (2) Do you have to be overly careful to make air-tight? New Jersey.

Dr. H. T. Mason.

Answers.—(1) Honey when used in cakes and cookies keeps them moist for some time.

In fact, we have known cookies kept over a year to be even better in flavor than when first made. The exact length of time they might be kept before becoming stale would depend upon the other ingredients, especially the kind of shortening and the amount of eggs used. (2) Any canned fruit having honey as an ingredient should be sealed just as tightly as tho the honey were not present.

Question.—I have been requested to ask you of the use of honey in sugar diabetes cases. Please explain why honey may be used instead of sugar.

California.

A. S. Leins.

Answer.—Years ago, cases of diabetes were very rare; but, as the consumption of sugar continued to increase, this disease increased accordingly, until it has come to be the belief of many that an excessive use of sugar is a direct cause of the trouble. If people could be induced to use honey instead of sugar, the disease would doubtless diminish. However, after one already has diabetes, honey could not of course cure the disease. We know that many doctors recommend the use of honey instead of sugar in such cases. Honey is a predigested food and, therefore, does not overtax the digestive organs as does the sugar.

Question.—I note in the A B C and X Y Z of Bee Culture that it says a nucleus should be strong in bees when one puts the queen-cell in. Will you please advise me why they should be strong in bees? and will a strong one raise any better queen than a weak one? It seems to me that all the feed has been given the queen before the cell was capped, and just so there were enough bees to keep the cell warm enough to hatch that it would be all right.

Virginia.

W. W. Likens.

Answer.—The nucleus may be small if there are enough bees to keep the queen-cells warm, and if the nucleus is not so small that it swarms.

ANSWER BY E. R. ROOT.

Question.—I am having a somewhat strange and unusual experience with some of my extracted honey this year. The honey of a particular season upon being extracted is more fluid than that of other seasons. When granulating it works itself out of the jars. These are not filled to the brim. When taken out of the hot water, after restoring to liquid form, it begins to foam if it is disturbed, but it becomes normal if left alone. For this reason, I have been having a little trouble with my customers. I would greatly appreciate your advice, Mr. Root, as to what the cause may be and what can be done about it.

Michigan.

John P. Wenzel.

Answer.—It is apparent that the honey you secured this year was not thoroly ripened. The fact that it is "more fluid," and that it "works itself out of the jar" when granulating are both pretty good evidence that the honey in question was not thoroly ripened. The further fact, that it is inclined to foam after you liquefy it, is another evidence. If you heat it thoroly, not over 140 F., and then let it stand in open cans in a warm room it will thicken. In some parts of California honey behaved itself in that way last summer. The only thing to do in such cases is to heat the honey and then let it stand in open cans or open vats.

HONEY crop in this part of Idaho was as poor as one can expect in a dry season such as we had this year, and had it not been for sweet clover along the creek that I seeded two years ago I could not have taken off at all.—Mrs. Margaret Green, Washington County, Ida.

I hope you can give us some good recipes on how to make honey wine this year.—Louis Biediger, Medina County, Tex.

The so-called disappearing disease was very bad until about or near the close of the buckwheat bloom. The bees ran about in all directions and gathered in heaps and died by the thousands.—Elwood Bond, Monroe County, Pa.

It has been an unusually late fall here. Today, Nov. 4, the bees are bringing in pollen and honey from tobacco bloom. The honey is very dark, with good body and strong flavor.—Bernard Johnson, Campbell County, Va.

Geo. H. Rea has been very successful in getting sugar for the New York State beekeepers. He knew exactly what he wanted and went after it. He had the backing of a well-organized system of Farm Bureaus within the State who co-operated and did everything according to the program he laid out, and the result of it is highly gratifying.—J. G. Needham, Professor of Entomology and Limnology, Cornell University, Ithaca, N. Y.

Nelson W. Peck, a Yakima Valley beeman, paid \$1.00 a minute for a 75-minute ride in an airplane for the purpose of picking out locations for his stands sufficiently removed from spray-poisoned orchards. He says he would have saved \$10,000 if he had made such a flight a year ago, and he plans to make three more before finally placing all his bees. Peck lost 750 out of 1,000 colonies of bees last season from poisoning.—Washington Farmer, Spokane, Wash.

This is not a very big place—about the size of California. We have a total of about 100,000 colonies. We have a cooperative association to handle all the honey. This last season we exported \$165,000 worth as well as supplying the local market. For the last two or three years conditions have not been normal at all here, as we have no boats to export our produce. Just now it is being got away rapidly.—T. J. Mannex, Waihou, Thames Valley, N. Z.

A judge in Thompson, Conn., the other day fined a man \$50.00 and sentenced him to three months' imprisonment for stealing a hive of bees. The man who swiped the hive of bees might have got away with it

BEES, MEN AND THINGS

(You may find it here)

perhaps, if, while he was lugging off the hive in the dark, his foot hadn't slipped, and he got a fall that wakened the bees so that they poured out and stung

him on the face and hands so severely that the swelling betrayed him the next day, and he was arrested.—Boston Post.

An organization of Inland Empire apiarists to be known as the Inland Empire Beekeepers' Association and to hold its first meeting in Spokane the early part of next February is recommended in the report of the executive committee of the Northern Idaho Beekeepers' Association.—Spokane News Bureau.

We have inspected 700 more apiaries this year than last and many more thousand colonies. This has been accomplished with the same number of inspectors (four), and we conducted 16 beekeepers' tours in as many counties. Four to nine demonstration meetings were held daily with an average attendance of 24 beekeepers.—C. O. Yost, Marion County, Ind.

The farmers let their tobacco bloom late in the season for the first time I have ever known them to manage it this way. It is the richest honey plant I have ever seen. There were great drops of nectar in the bloom and the bees worked on it to beat anything I have ever seen. The blossom is trumpet-shape so the bees can get all of the nectar.—J. M. Venable, Surry County, N. C.

The Cascade Mountains divide Washington from north to south; and so far as conditions and climate are concerned it is the same as two separate States. The west side has never been considered much of a bee country. There are not more than a dozen commercial producers on that side, and none of them on anything like a large scale.—W. L. Cox, Chehalis County, Wash.

On page 588 J. E. Crane speaks of cleaning propolis from sections. Now, when I raise comb honey for the market I take my broken sections, that part with the beeway, and lay them on top of the sections in my super, exactly covering the beeway in the sections, and that stops the trouble from propolis. The sections will come off as clean as a pin.—L. E. Reed, Clay County, Kan.

I own three apiaries. In one, an Italian yard, there seems to be no let-up to drones even tho I deprive them of all unnecessary drone comb. Bees will draw worker-cells to drone dimensions any way. In another apiary it seems impossible to get enough drones, altho I have the bees draw out starters for drone comb. Neither locality nor honey flow seems to make the difference. I believe the difference is due to the strain, or

more properly the queen. On proper analysis I think most of our successes and failures can be traced to the queen.—M. S. Phillippe, Imperial County, Calif.

Most of the commercial beekeepers of Vermont live within 20 miles of the west line of the State. In fact, the larger part live within 10 miles of Lake Champlain.—J. E. Crane, Addison County, Vt.

"The wings, therefore, are well adapted for producing sound waves corresponding in a way with our present-day wireless system of sending messages. * * * At the wireless receiving station are the antennæ which receive the vibrations and convey the impression to the brain."—Lawrence Bellman, Rock County, Wis.

Two sections of honey produced in my apiary in 1916 traveled 7,500 miles by parcel post and came thru the ordeal in perfect condition. The sections were sent Nov. 22, 1916, by our postmaster here to his nephew, Pte. W. T. Longfield, Imperial Mechanical Transport with the Salonika forces, and reached Pte. Longfield during the last week of January, 1917, thus being about two months on the way, and yet the sections were received in perfect order. They were packed together with canned goods, etc., in a tin pail, making up the regulation standard package. It seems to me that this is a record for long-distance shipping of comb honey.—Warren Sadler, Ontario, Can.

When a mere lad, with other youngsters I ransacked the third floor of a neighboring farm residence. The upper room of this large farmhouse had been fitted up for a honey-room and for bee supplies. The old hives and fixtures did not interest me; but what had been a complete copy of the A B C and X Y Z of Bee Culture did. The leaky roof had left the book without covers, and some leaves were missing; but I took the book home and read everything in it. That gave me the bee fever. Father purchased a colony simply to satisfy me. After re-reading that old book till it was all worn away, I decided as a child that "dad Root" was an ideal man, and I have never changed my mind all these years.—A. E. Trapp, Fergus County, Mont.

Altho I have "monkeyed" with bees about 12 years, this is the first year I have given up all other work and devoted my entire time to beekeeping. I gave up a position as traveling mechanical engineer for the largest firm in the United States manufacturing camera machinery. I have sold a little over \$2,600 worth of light honey, and got some honey from buckwheat, so it looks as tho I should make good. I think young queens are one of the keynotes to success. They also aid materially in overcoming European foul brood. I had 34 cases of European foul brood, and succeeded in producing a fairly good crop from all of them but one. I purchased a dozen queens from each of four breeders, making 48 in

all, and lost only one. That hive, I believe, had two queens. I transfer all queens from the mailing-cage to the Miller cage without attendants, clipping before introducing.—George Mack, Chautauqua County, N. Y.

I am quite sure that I am the only fellow in the United States who can produce a sample of pinkvine honey, and be sure about it. Of course, any one else could do the same in my part of Tampa if he tried. The honey is fine for brood-rearing, as the plant is a steady bloomer from spring till fall. One might easily believe some orange is blended with this pinkvine honey, as it very much resembles orange honey in thickness, flavor, and color. It is not an extra well-flavored honey; but as it has such a heavy body I believe it would be considered in the market as a first-class honey for Florida.—Perry W. Hayes, Hillsboro County, Fla.

Here is my way of introducing and re-queening black and hybrid stock with virgin queens. During swarming time I have some virgins handy; and when a swarm comes out I put the swarm in a new hive, then go to the old hive and let one of the virgins run in at the entrance. The young queen kills the queen-cells in the old hive, and I have never had one of these virgins balled yet, and I am never bothered with second swarms. I notice in the October number an article by Jay Smith about safe introduction of queens. He says that about 50 per cent are lost in introducing. I have ordered queens for two years, and introduced in the mailing-cage and have not had one failure.—Leo Wardell, Anderson County, Texas.

During the holiday rush I worked as auxiliary clerk in the postoffice at Schenectady, N. Y., and there learned how parcel-post packages are taken care of. A great many packages that came in had been poorly wrapped by the sender, and consequently there was many an article which I rewrapped and stamped, "Received in bad condition at Schenectady, N. Y." With the great amount of parcel post, practically four-fifths is thrown from one place to another, as the method is so much quicker and easier than carrying to the spot needed. Knowing this, I believe that no extracted honey should be mailed in fiber or paper containers, and that all honey packed in tin pails should have covers of the push-in friction-top style, and these should be insured as well as crated, if for no other reason than that insured packages are, as a rule, better taken care of. The sender of an insured article is entitled to a return receipt from the person to whom it is sent, the same as the sender of a registered letter. By writing near the receiver's address the words "Return receipt requested," and notifying the carrier or postmaster that you wish a return card sent with each parcel you insure, you can take advantage of this benefit.

Clarence Foote.

Schenectady County, N. Y.

THE Indiana State Beekeepers' Association will hold its annual meeting at the State House, Indianapolis, Dec. 18 and 19. This meeting promises to be the best one held in Indiana in years. B. F. Kindig, State Inspector of apiaries for Michigan, Jay Smith of Vincennes, and Prof. E. G. Baldwin of the U. S. Department of Agriculture are among those on the excellent program prepared.

* * *

The Chicago Northwestern Beekeepers' Association will hold its annual meeting in Room 138, Great Northern Hotel, Chicago, Dec. 15 and 16. John C. Bull, Valparaiso, Ind., is secretary-treasurer.

* * *

The time and place of the meeting of the Minnesota Beekeepers' Association has been changed. The meeting will be held Wednesday and Thursday, Dec. 31 and Jan. 1, at the at the University Farm, St. Paul.

* * *

The Chenango County (New York) Beekeepers' Society will hold their second annual meeting at Norwich, N. Y., on Dec. 20. Geo. H. Rea, Extension Specialist in Apiculture, will be present and address the meeting.

* * *

The American Association of Economic Entomologists will hold a convention at St. Louis beginning Dec. 29. Editor E. R. Root will appear on the program for the apicultural meetings, which will probably be held on Dec. 31.

* * *

A two-day convention of the Chemung County (N. Y.) Beekeepers' Association, in conjunction with the Chemung County Farm Bureau, is to be held at Elmira Dec. 11-12. Geo. H. Rea will be in charge of the demonstration work, and profitable results are certain.

* * *

At the last convention of the National Beekeepers' Association the officers of the organization were authorized to call a meeting of delegates from the various States to be held at Kansas City, Mo., during the coming winter. This meeting will be held Jan. 6-9, 1920, at the Muehlbach hotel. It is of extreme importance that every State beekeepers' organization arrange for the sending of one or more delegates to this convention.

* * *

The convention of the Ontario Beekeepers' Association which was held at Toronto, Nov. 11, 12, and 13, was an unusually enthusiastic gathering. The program as given in the last Gleanings proved very interesting, and a lively discussion followed each address. There were about 130 in attendance, many extensive beekeepers among the



number. A few beekeepers from the United States were present, New York, Ohio, and Michigan being represented. A resolution was passed asking the

provincial government for a \$30,000 appropriation for fighting foul brood. W. W. Webster was elected president; A. McCavish, first vice-president; R. E. L. Harkness, second vice-president; and Prof. F. Eric Millen, secretary-treasurer.

* * *

The Adirondack Beekeepers' Association, A. W. Cary, president, and H. E. Gray, secretary-treasurer, has voted to affiliate with the New York State Association of Beekeepers' Societies, and elected the secretary as delegate to the winter meeting at Syracuse next February.

* * *

Florida has recently made very stringent rules in regard to disease. No hives or fixtures are to be moved into the State without a certificate stating them to be free of disease. All apiaries in which disease has appeared are to be strictly quarantined and no equipment moved from them unless properly disinfected as prescribed and approved by the plant commission. No queen bees and attendants are to be shipped within the State, unless accompanied by a certificate of the current year from an authorized inspector to the effect that the queens are free from disease, or a sworn statement by the queen-breeder that the honey used in the candy was diluted and boiled in a closed vessel.

* * *

The Wisconsin State Beekeepers' Association will hold its annual convention at Madison on Dec. 4 and 5. An exceptionally interesting program has been prepared. The morning session of the first day will be devoted to reports of committees and officers and to other business. At the first afternoon session Gus Dittmer, president of the Association, will deliver an address. Dean Russell of the College of Agriculture will speak on "The New Era in Beekeeping." Other speakers at this session are H. J. Rahmlow, A. C. Allen, and A. Swahm. A banquet will be held from 5:30 to 7:30 the first evening, followed by a session on foul brood, when the speakers will be S. B. Fracker, State Entomologist, H. L. McMurry, Deputy Inspector, and M. E. Eggers. The speakers at the morning session of the second day will be N. E. France, G. P. Nord, Edward Hassinger, Kenneth Hawkins, Miss Iona Fowls, H. L. McMurry, and L. C. Dadant. The afternoon session of the second day will be given up to business matters of the Association and the election of officers and appointment of standing committees.

WHEN Vol. I, No. 1 was put out 47 years ago, every little while there would be a call for a certain number, and I would be told it was "out." After that I said we would print enough so we could supply the demand and also have a few to give away.

During these 47 years, every little while we have been bothered and worried because a certain edition was exhausted. Just a few days ago I wanted to present an article of importance to somebody who would probably fail to be convinced unless he saw the article in plain black and white. After ransacking the office I had to give it up; but I finally took one of our bound volumes and cut out two leaves, and asked to have them back again. We pasted them back where they belong, as well as we could. Now, in order to be sure we had enough, for a good many months we printed so many we had quite a few to spare, and these have been put away on labeled shelves for the whole 47 years. Of course they occupy considerable room, and many of them are lying there getting dusty, uncalled for, or mostly so, year after year. Once more we are crowded for space in the printing and binding departments. To get rid of the old journals, on page 702 of our last issue we advertised a full year, post-paid, for 50 cents. To illustrate the possible value of these old journals I want to give you two stories.

Years ago, while visiting a beekeeper in northern Wisconsin our host told me there was one man in his town who would be "overjoyed to meet A. I. Root." Now, do not think that I am boasting. Wait a little. This man was hired to make some hives. He carried his dinner; and after he had finished it he happened to notice a copy of Gleanings on his workbench. He became interested, read it all thru, and asked his employer if he could loan him some back numbers. He not only became interested in bees, but something I wrote in the Home papers reminded him that neither he nor his family were attending church or Sunday-school as they should do. He became a professing Christian, invited me to his home, gave me the family Bible, and asked



Let your light so shine before men.—MATT. 5:16.
Cast thy bread upon the waters; for thou shalt find it after many days.—ECC. 11:1.

He which converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins.—JAMES 5:20.

me to make a selection and lead them in prayer. Some of you who have had a like experience can tell something of the joy and peace that thrilled my heart on my way home.

Once more: A way off in northern California I had some unpleasant experience in

fixing up a business matter. In changing cars I got into a crowd where there was no place to sit down. A passenger said to me, "See here, stranger, you are older than I am. Take my seat." Pretty soon some one got up and then we were seated side by side. I had not gotten over being cross about things, and I did not want to talk with anybody; but *something*—I guess it was the "still small voice"—suggested that I was not "letting my light shine," and so I commenced to talk with my seatmate. He told me where he lived, and then, naturally, asked me where I came from. When told I lived in Ohio he asked if I had ever been near a place called Medina. Then I began to catch on to what might be coming. My friend went on to explain something as follows:

"Stranger, I had a long spell of sickness a while ago. When I was getting better I wanted something to read. A kind neighbor suggested he had some old bee journals up in his garret that he thought might interest me, and he brought them over. They were published by a man named A. I. Root, of Medina, Ohio, and I would give more to see that man than anybody else in the whole wide world. I wonder if you know him or have ever heard of him."

You can imagine how I mentally thanked God that I had resisted the temptation to keep still and not talk with anybody. His story was like the one before mentioned. Himself, his wife, and his family of children had become not only interested in bee culture but followers of the Lord Jesus Christ thru the influence of those old dusty bee journals stowed away in a garret*. So far as I can recall, I had not at that time

*By the way, the above has happened not only once but several times. Again and again have kind friends written me about sending old bee journals that had, perhaps, lain for years in some garret, and being resurrected and bearing good fruit in the way I have suggested.

discovered that beautiful text in the last chapter of the book of James—the text I have repeated so much that I am almost afraid you are getting to be tired of it—“He which converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins.” Can you imagine what a visit we two had before we left that car?

Now, the younger members of the firm have several times said we should have to sell these old bee journals for paper-rags. When I think what they have done in times past, something tells me not to do it. The experiments I made in years past are valuable—yes, very valuable—as these journals contain records of those experiments. Just one illustration:

Years ago beekeepers were accused of feeding their bees sugar in order to enable them to “make honey” to be sold at many times the value of the sugar syrup. I protested; and finally, to convince the public, I fed a whole barrel of sugar in a few weeks to a single colony of bees. I induced them to store it in nice new combs and cap it over nicely. The result was not exactly sugar syrup, and it might have passed for very good honey. But my experiment with the barrel of sugar demonstrated that it could not be done profitably, and would not be done, no matter how great the difference between sugar and honey. The great trouble was, the bees had to be fed quite a lot before they would secrete wax; and in converting the sugar into wax, a great part of the sugar went somewhere. Others verified my experiment, and whoever undertook it dropped it because it did not pay, and the great wide world stopped accusing us of feeding sugar, or, worse yet, glucose, in order to get the bees to “make honey.”

Now, to get rid of these old back numbers, and at the same time have them do good in some way or somewhere, anybody can have a full back year of single copies for 50 cents, which means 24 copies for the years from 1884 to 1916—so long as they last; and any single copies at 5 cents.

THE ELECTRIC WINDMILL AND THE CHICKEN BUSINESS.

(See page 753, December, 1918.)

In the *Rural New Yorker* for Oct. 25 there is quite an article commencing on the first page, entitled “Poultrymen Take to Artificial Lighting Like Ducks to Water”; and I think it will abundantly pay every chicken-man to send for that copy of the *Rural*, even if he does not subscribe for it. One of the main points brought out is this:

A laying hen, especially a laying Leghorn, can take only enough food at one time to last her ten or twelve hours, especially if she is to lay an egg every day. Well, up here in the cold North, especially when there are cold and cloudy days, the hens may go on the roost at four or five o'clock. And, by the way, we have been told over and over again that before said laying hen goes to roost she should have abundant good, nourishing food, so that she can climb up for the night with a *full crop*, for if the morning after is dark and cloudy during our short days and long nights, it may be 14 or 15 hours before she has a chance to get any more feed. The *Rural* says that after a hen has been on the roost about 10 hours she is suffering for a want of food, and therefore electric light or some other light should be turned on so that she will not be more than 10 hours without a chance to get food. It does not seem to make very much difference whether the light is put on in the morning or night, or both. If put on the night before, the hens ought to be able to take food, say up to about 9 o'clock. Let them sit up and scratch for feed until about that time. Then be sure that they have plenty of good food, on time, when they get off the roost in the morning.

Now, there have been objections made, that, if you make the hen lay at an unnatural time, say during November, December, and January, she can not keep up her laying in the spring months; and some agricultural papers have made this objection, and dropped it right there. Why, my good friends, even if this *were* true, just notice the difference in the price of eggs in any locality about Christmas time, and, say, May or June. Just now, Oct. 28, eggs are quoted in Cleveland at 75 to 80 cents a dozen retail, and I am told that in the city of New York they are \$1.00.

Some of you may ask, “How about the windmill? What has that got to do with it? Why, my dear friends, it gives you the electricity to light your poultry houses at no expense at all after the equipment is up; and the whole outfit costs but little or no more than the Delco or similar outfits that are now to be found almost everywhere. All of these use kerosene or gasoline. The windmill uses only *wind* which goes to waste if you do not use it. With Delco and other outfits your engine wears out or needs expensive repairs in four or five years. The windmill, with its slow revolution of only 25 a minute, will stand a lifetime. The only expense that I know of so far is the rubber belt, and we can not tell just yet how long that will last.

There is one thing more. A tornado might probably blow it down, altho I have not heard of any such catastrophe as yet. My new windmill that has just been shipped cost \$250. Of course there has to be a generator, switchboard, and a set of batteries. But these three items are just about the same that are needed for the Delco and similar outfits.

There are two more items that should be mentioned in connection with the windmill—the rubber belt, costing \$18.00, and a tower to hold the windmill, costing about \$75.00. Of course you would not put up an electric windmill expressly for the poultry-yard, unless, indeed, you are keeping chickens by the hundreds or thousands. But it begins to look just now as if every farm home as well as every village and city home will have to have electricity from some source.

While we are on this matter of windmills and electricity, see the clipping below which I take from the *Scientific American*:

WIND-DRIVEN DYNAMOS.

An account was recently given in *Ingeniøren* by H. C. Vogt, of some experience of the utilization of wind power for driving dynamos. The mills described had sails 100 feet in diameter and an area of 3,930 square feet. With a mean wind velocity of 24 feet per second, 290 horse-power was obtained. Power is transmitted from the main shaft by a series of cog wheels with the spokes in tension; rope and chain gearing were found not to answer. By means of gearing, the speed of the main shaft, $12\frac{1}{2}$ revolutions per minute, is increased to 1,500 revolutions per minute for the dynamo.

Two hundred and ninety horse power is certainly "going some." By the way, it took me some time to find out where it is that they have windmills 100 feet in diameter. Finally we wrote to N. W. Ayer & Son, of Philadelphia, who inform us as follows:

Ingeniøren is a mechanical and engineering publication published in Copenhagen, Denmark.

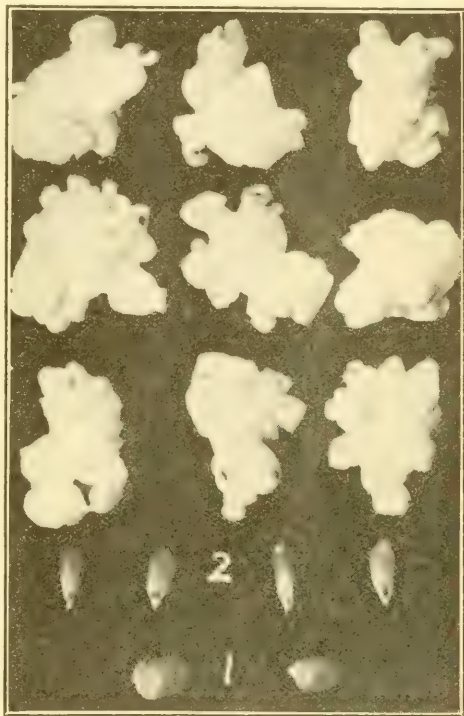
From the above it seems that it is *Denmark* that is making such tremendous use of the wind for generating electricity. Now, they are certainly doing things there on a larger scale than the Wind Electric Corporation; but I think they will soon (if they have not already) get rid of their "cogwheels" and other like "contraptions," and use a simple rubber belt as we do.

BURBANK'S SORGHUM POPCORN.

On page 702, *Gleanings* for November, I made brief mention of this; but I omitted one particular point. The grains of this new popcorn are so small and needlelike that they bother us by slipping thru an ordinary corn-popper.

No. 1 shows ordinary grains of popcorn.

No. 2 shows our Burbank sorghum popcorn, and the popped-out grains are shown above from the Burbank popcorn. When I came to see the way this corn pops out I uttered a shout. Why, it almost seems ridiculous to think the little slender grains close to Fig. 2 could pop out into the beautiful snowy grains above. Popcorn is a good and wholesome food; but who would have supposed, if he had not seen it, that such a large amount of rich nourishing food could be stored up in that little grain close



"Before, and after." Burbank's new popcorn.

to Fig. 2? After I had finished my picture, some one asked why I did not show the popped-out grains of No. 1. The fact is, I forgot it; but they were nothing near as large nor as white as the Burbank grains. So many of these little grains slip thru the corn-popper that one will have to get one of finer mesh or else use a sheetiron popper. We now pop our corn over a gas stove, and any kind of wire-cloth popper makes more or less litter. Perhaps a sheet-iron popper will be more tidy and cleanly where either gas or gasoline is used to do the popping. As I said in the November issue, any subscriber to *Gleanings* can have a few of the grains of sorghum popcorn by sending us a stamped addressed envelope.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Well-ripened clover honey in new 60-lb. cans. Geo. M. Soward, Cato, N. Y.

FOR SALE.—Heartsease honey in 60-lb. cans. O. R. Carr, Avon, Ills.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Raspberry-milkweed honey in new 60-lb. cans (2 in case). P. W. Sowinski, Bellaire, Mich.

FOR SALE.—Buckwheat honey, put up in 60-lb. cans, two per case. H. B. Gable, Romulus, N. Y.

FOR SALE.—Well-ripened buckwheat honey in 60-lb. cans, 18c, f. o. b. Albany. D. L. Woodward, Clarksville, N. Y.

FOR SALE.—Several tons of New York clover honey in new 60-lb. cans. For sample and price address John N. Demuth, Pembroke, N. Y.

FOR SALE.—Well-ripened clover honey in new 60-lb. cans, packed two in a case, at 25c per lb. f. o. b. shipping point. Sample on request. Leland Farnsworth, Chief, R. F. D. No. 1, Mich.

FOR SALE.—Four tons choice clover honey, extra well ripened, packed in new 60-lb. tins, two in a case. Wish to sell in one lot. Lee & Wallin, Brooksville, Ky.

FOR SALE.—Extracted honey, fine quality clover, 25c; clover and buckwheat mixed about half and half, 20c. Two 60-lb. cans to case, in 5-lb. pails, 3c a pound extra. Some buckwheat comb honey at \$6.50 per case of 24 sections. H. G. Quirin, Bellevue, Ohio.

FOR SALE.—Raspberry honey slightly mixed with goldenrod. Was all left on hives until thoroly ripened. It is thick, rich, delicious, none better; put up in 60-lb. cans. Price, \$15.00 per can. Sample by mail for 20c which may be applied on order for honey. John Hutchinson, Lake City, Mich.

FOR SALE.—Well-ripened clover honey in 60-lb. cans at 25c per pound, packed two in a case. This same grade of honey in five-pound friction-top pails, 12 pails in a case, at 27c per pound. Prices are f. o. b. shipping point. Sample mailed for 10c. O. H. Schmidt, Bay City, R. F. D. No. 5, Mich.

FOR SALE.—Our crop of honey is now ready for shipment. It is a good grade white clover with a very small trace of basswood, almost water-white. It is put up in new 60-lb. tin cans, two to the case. This honey was all produced by ourselves above queen-excluders in nice white combs. Then combs were provided so that no honey was taken off until after the season when it was thoroly cured by the bees. It costs more to raise a crop of honey this way, as we do not get as much per colony; so we have to have a little more money for this fancy article than the ordinary honey on the market. Try a small order and we feel sure you will buy no other. We can furnish at the following prices f. o. b. Northstar, one 60-lb. can \$15.50. In cases of

two cans \$30.00 a case in any sized orders. The crop is short this year, and will not last long at these prices. We feel quite sure that the price will not be any lower; so do not be disappointed by not ordering early if you are looking for honey as good as money can buy.

D. R. Townsend, Northstar, Mich.

E. D. Townsend & Sons, Northstar, Michigan, offer their 1919 crop of white clover and white clover and basswood blend of extracted honey for sale. This crop (it's only a half crop this year) was stored in nice white clean extracting combs that had NEVER had a particle of brood hatched from them. We had more of those extracting combs than we could possibly use this year, and we piled them on the swarms as needed. NOT A SINGLE OUNCE OF HONEY WAS EXTRACTED UNTIL SOME TIME AFTER THE CLOSE OF THE WHITE HONEY FLOW; consequently, NONE could be produced that will excel this crop of honey. Of course, it is put up in NEW 60-pound net tin cans, and they are cased up for shipment, two in a case. If you are one of those who buy "just ordinary" honey, at the lowest price possible, kindly do not write us about this lot of honey; but if you can and have customers who will want the very best and are willing to pay the price, order a small shipment of this fine honey as a sample, then you will know just what our honey is and whether it is worth the little extra price we ask for it or not. We quote you this fine honey, either clear clover, or that containing about 5 per cent of basswood—just enough basswood to give it that exquisite flavor relished by so many, at only 25c per pound on car here at Northstar. Kindly address, with remittance. E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Comb and extracted honey, car lots and less. Mail samples, quantity, and price. W. Morris, Yonkers, N. Y.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations. M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted. Hoffman & Hauck, Inc., Woodhaven, N. Y.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston. M. V. Facey, Preston, Minn.

WANTED.—White clover or light extracted honey. Send sample, state how honey is put up and lowest cash price delivered at Monroe. Also buy beeswax. E. B. Rosa, Monroe, Wisc.

BEE SWAX WANTED.—During December I will pay 42c per lb. cash for average yellow beeswax, delivered here. State quantity and quality and await reply before shipping. E. S. Robinson, Mayville, N. Y.

BEE SWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WE BUY HONEY AND BEESWAX.—Give us your best price delivered New York. On comb honey state quantity, quality, size, weight per section, and sections to a case. Extracted honey, quantity, how packed, and send samples. Charles Israel Bros. Co., 486 Canal St., New York, N. Y.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 40c cash, 42c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival. The A. I. Root Co., Medina, Ohio.

BEESWAX WANTED. For manufacture into **SUPERIOR FOUNDATION.** (Weed Process.)
Superior Honey Co., Ogden, Utah.

FOR SALE

HONEY LABELS. New designs. Catalog free.
Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—Barnes No. 4 saw; 5 saws. Price, \$50.00.
R. E. Hammond, Bethune, S. C.

Kentucky and Mississippi beekeepers, send me a card.
W. Jensen, Mars Bluff, So. Car.

Beekeepers' supplies at reasonable prices. Elton Warner, 150 Cumberland Ave., Asheville, N. C.

FOR SALE.—**SUPERIOR FOUNDATION**, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

FOR SALE.—Pan Handle beekeepers, please note that you can buy Root bee supplies "next door."
Will C. Griffith & Sons, Elm Grove, W. Va.

STILES BEE SUPPLY COMPANY. Stillwater, Okla. We carry a full line of Root's Bee Supplies. Beeswax wanted. Free catalog.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.
R. & E. C. Porter, Lewistown, Ills.

FOR SALE.—Second-hand honey tins, two per case, in exceptionally fine condition, at 50c per case. Buy them now for next season's honey crop.
Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FOR SALE.—Comb foundation at prices lower than you had thought possible. Wax worked for cash or on shares. Satisfaction guaranteed.
E. S. Robinson, Mayville, N. Y.

MAKE YOUR OWN HIVES! Complete hive-making outfit, with electric motor, almost as good as new. \$200 cash, quick. From Indiana. Address 73, O and B Co., c o A. I. Root Co., Medina, Ohio.

FLORIDA BEEKEEPERS.—You save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.
Crenshaw Bros. Seed Co., Tampa, Fla.

FOR SALE.—12 new Champion, double-walled hives, complete with frames, nailed and painted. Will sell at knock-down prices. Address G. O. Bosche, West Allis, R. D. No. 4, Box No. 38, Wis.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Bee-ware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

FOR SALE.—200 new 10-frame cross style reversible bottom-boards at 50c each; 200 new 10-frame flat reversible covers made of best select white pine at 60c each; 100 new Alexander feeders for 8- or 10-frame hives at 20c each; 150 Boardman feeders without cap or jar at 12c each. All above goods are factory-made and have never been used. Write M. E. Ezgers, Eau Claire, Wis.

FOR SALE.—New hives, reversible bottom-boards, telescope metal covers, self-spacing frames, made by me, sold at a big discount. Write for particulars.
O. L. Rothwell, Gillett, Pa.

AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the **AUTOMOBILE DEALER AND REPAIRER**; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline-engine repairs. \$1.50 per year, 15 cents per copy. Postals not answered. Charles D. Sherman, 107 Highland Court, Hartford, Conn.

REAL ESTATE

FOR SALE.—Farm of 140 acres. Very productive; fine buildings; modern 12-room house. Desirable location, near R. R. station and school. Fruit and bees. Fine sugar bush. Bargain. Cash or part payment. Jerome Hibbard, Calcium, N. Y.

FOR SALE.—On beautiful west bay shore of Grand Traverse Bay, 13½ acres of unimproved land. Timber and stove wood will more than pay for it. An "ideal" location for a beekeeper. Price \$1,100.00.
J. Pohanka, Traverse City, R. F. D. No. 7, Mich.

WANTS AND EXCHANGE

WANTED.—5 to 100 colonies of bees.
T. Wanske, 1233 Barry Ave., Chicago, Ills.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax.
Superior Honey Co., Ogden, Utah.

WANTED.—Barnes saw table No. 4. Give particulars and price in first letter.
L. E. Miles, Box No. 407, Balboa, Canal Zone.

WANTED.—Comb foundation machine, 8 or 10-inch rolls. Will give a good price.
John Betz, Route A, Salinas, Calif.

WANTED.—An apiary on shares in Ohio for 1920. 27 years' experience.
P. W. Stahlman, West Berne, N. Y.

For sale or exchange for bees, honey, empty hives, or any equipment necessary to honey production, high-grade Belgian hares.
XXth Century Rabbitry, Cobden, Ills.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., Pearl & Walnut St., Cincinnati, O.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumzug. Send for our terms and our new 1919 catalog. We will buy your share of the wax for cash or will work it into foundation for you.
Dadant & Sons, Hamilton, Illinois.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens. No bees.
W. G. Lauver, Middletown, Pa.

Well-bred bees and queens. Hives and supplies.
J. H. M. Cook, 84 Cortlandt St., New York.

Golden Italian queens, untested, \$1.00 each, six for \$5.00.
E. A. Simmons, Greenville, Ala.

QUEENS ON APPROVAL. Bees by package or colony. A. M. Applegate, Reynoldsville, Pa.

PHELPS' GOLDEN QUEENS will please you. Mated, \$2.00. Try one and you will be convinced. C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Three-banded Italian queens and golden queens, April 10, 1920. W. T. Perdue, Ft. Deposit, R. D. No. 1, Ala.

"She suits me" Italian queens, \$1.15 each from May 15th to Oct. 15th; 10 or more, \$1.00 each. Allen Latham, Norwichton, Conn.

FOR SALE.—Indianola Apiary offers Italian bees and queens; tested, \$1.50; untested, \$1.00. J. W. Sherman, Valdosta, Ga.

Leather-colored Italian queens, tested, June 1st, \$1.50; untested, \$1.25—\$13.00 a dozen. A. W. Yates, 3 Chapman St., Hartford, Ct.

FOR SALE.—Three-banded Italian queens, untested, \$1.00; \$10.00 a dozen. J. A. Jones & Sons, Montgomery, Ala., R. F. D. No. 1, Box 11-A.

THREE-BAND Italians only. Untested queens, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00. H. G. Dunn, The Willows, San Jose, Calif.

FOR SALE.—125 colonies Italian bees, 10-frame, 2-story. Modern, A-1 condition. No disease. 575 Box No. 151, Tucson, Ariz.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, \$1.00; mated, \$2.00. C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Golden Italian queens ready April 15; \$1.00 each; \$10.00 per dozen. W. W. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—25 or more colonies of Italian bees, and a lot of supplies. If you want a bargain write me for I am going out of the bee business. J. O. Garman, Glasgow, R. F. D. No. 4, Ky.

GOLDENS THAT ARE TRUE TO NAME. Untested queens, each, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00. Garden City Apiaries, San Jose, Calif.

BEEES BY THE POUND.—Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Callallen, Texas, E. B. Ault, Prop.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GEN-TLE. Virgins, \$1.00; mated, \$2.00. C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Michigan-bred Italian queens. Am now booking orders for Aug. 1st delivery. Three-band only. Untested, 1, \$1.00; 12, \$10.00; 100, \$80.00; tested, \$1.75 each. D. A. Davis, North Detroit, Mich.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May and June, untested, each, \$2.00; six, \$7.50; doz. \$14.00; tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnetts, Va.

FOR SALE.—Italian queens from best, disease-resisting stock, mailed as soon as hatched. Improved method for introducing with every order. Prices, April to October, 1, 75c; 10, \$6.00; 50, \$25.00. Order now for spring delivery. James McKee, Riverside, Calif.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking. H. G. Quirin, Bellevue, Ohio.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, \$1.25; 12 queens, \$14.00. One pound of bees with queen, postpaid, \$6.00. Safe arrival and satisfaction guaranteed. M. Bates, Greenville, R. D. No. 4, Ala.

MISCELLANEOUS.

Write for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

Guinea Pigs. Young stock, for sale, females \$1.50; males \$1.00. Pleasant Hill Caviary, 1629 E. Florida St., Springfield, Mo.

Trappers, Hunters. I tell you how to tan skins, make animal bait, how to remove skunk odor, and my best methods for trapping. Send 50 cents today. O. Johnson, Thayer, Iowa.

FOR SALE.—CALIFORNIA WONDER CORN for seed. A new white dent. Has averaged as high as six good ears per stalk or over 300 bushels per acre. Also fifty tons of ensilage. A great money-maker. Order now. Price 35c per lb. James McKee, Riverside, Calif.

FOR SALE.—As long as stock lasts will sell at following prices: Cavies (Guinea Pigs) breeding age, males, \$1.00; females, \$1.50; pair, \$2.25; trio, \$3.50. Belgian hares, breeding age, males, \$2.00; females, \$2.50; pair, \$4.25; trio, \$6.25. Also young of each. Order from ad. Quincy Hart, Gentryville, R. D. No. 1, Ind.

TELL WHAT YOU KNOW! The Western Honey Bee offers cash and other prizes in a competition (ending March 1st) for articles pertaining to the work of beekeeping. Try your hand; any one can compete, whether a subscriber to the Honey Bee or not. Send for a sample copy (free) containing particulars. Address WESTERN HONEY BEE, 121 Temple St., Los Angeles, California.

HELP WANTED

WANTED.—Man to tend about 300 swarms of bees. Steady employment to the right party. State wages and experience. S. R. Stewart, Rifle, Colo.

WANTED.—Two experienced bee men for the season of 1920. One queen-breeder with experience; one with experience in handling bees. State age, number of years' experience and wages. Also give reference. W. J. Forehand & Sons, Ft. Deposit, Ala.

WANTED.—Ambitious young man with some knowledge of beekeeping and supplies. Should have good common school education, writing fair hand, and quick to learn, willing to work hard to learn a good business and permanent position. Address A. L. Boyden, Director of Sales, Medina, Ohio

WANTED.—A competent and reliable, clean, single young man to run our apiary of 140 colonies for comb honey, cultivate 10 acres and do regular chores. A good thing for the right kind of a man. State age, experience, and terms of payment in first letter. May refer to The A. I. Root Co., Medina, Ohio. Mrs. Geo. E. Goodwin, Lyons, Mich.

SITUATIONS WANTED

WANTED.—A position with some large beekeeper, season of 1920, either comb or extracted honey. Have had some experience. Grover Campbell, Quincy, R. F. D. No. 2, Ills.

Lady wishing to learn beekeeping on progressive farm offers her services. Will make herself useful at any light farm work. Go anywhere. Some experience. Educated, but not fastidious. Address H. K., c o Gleanings, Medina, Ohio.

Bees, Queens, Beekeepers' Supplies

PROMPT SERVICE
FAIR DEALING

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The Penn Company
Penn, Mississippi

THE FOREHAND FEEDER

This is the greatest invention along this line the bee-world has ever known. It is a feeder that it took ten years to perfect. It has been in use for twenty-seven years. It is a success for

1. There is no cold feeder in the brood-nest or on the outside of the hive to start robbing.
2. It does not drown or freeze the bees.
3. It has two uses. This cuts the cost in half.
4. It is a convenient time saver. You can feed at any time.
5. It is not an expensive feeder.
6. It saves labor, feed and bees.
7. It is a GOOD FEEDER.

BEE SUPPLIES.

We handle everything the beekeeper needs. Write at once and get the 35% saving on the greater part of our supplies. Catalog free.

PRINTING.

We have a modern printing plant especially equipped to supply the requirements of the beekeepers. Our long experience and up-to-date equipment enable us to turn out first-class printing promptly. Write us for further information and prices.

QUEENS.

Forehand's Three Bands need no recommendation. For over a quarter of a century they have been pleasing the best beekeepers

thruout the world. They are the kind that are surpassed by none but superior to many. They are thrifty, hardy, gentle, and beautiful. Write for special queen circular. Get your order in now before the rush.

POUND BEES.

Six thousands pounds is our capacity for the season of 1920. We are booking orders now. After we have booked orders for this amount no more will be received. Get your order in now. Write for prices and information.

For twenty-seven years we have been in the bee business on an extensive scale. We know the beekeepers' needs and can fill them to your satisfaction, it matters not what you want.

W. J. Forehand & Sons "The Bee Men" Ft. Deposit, Ala.

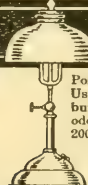
NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1919 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

BEES We furnish full colonies of Italian bees in double-walled hives, single-walled hives, shipping-boxes, and three-frame nucleus colonies.

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Nassau Co., N. Y.



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Complete Line of

Beekeepers' Supplies

Catalog on Request

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Dont Send a Penny

Just write stating size and width—that's all. We'll send the shoes promptly. We want you to see these shoes at our risk. Examine them, try them on—and then decide as to whether or not you wish to keep them. Our special bargain price is only \$4.69 per pair while they last. Season's greatest bargain. We send them to you, not a cent in advance, so that you can compare them with any \$7.00 or \$8.00 shoes. If you don't think this the biggest shoe bargain you can get anywhere, send the shoes back at our expense. You won't be out a cent. We take all the risk.

Stylish and Durable

Made of genuine leather in gun metal, popular style, Manhattan last. Blucher style. Comfortable, substantial, long wearing genuine oak leather soles—reinforced shank and cap. Military heel. Best expert workmanship. Black only. Sizes, 6 to 11. Pay **\$4.69** for shoes on arrival.



If on examination you don't find them the greatest shoe bargain of the year, return them to us and back goes your money. No obligation, no risk to you. But you must send at once. A sale like this soon sells the stock.

SEND NOW

Just your request. No money now. Wait until they come. Pay when shoes arrive. Keep them only if satisfactory in every way. Give size and order by No. A15105. Send no money.

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RHODES

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THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door.

Write for circular and prices.

Special Notices by A. I. Root

THOSE ADDRESSED AND STAMPED ENVELOPES, ETC.

Please don't send them *here*, good friends, when you want the Burbank seeds, but send to Medina, Ohio. I have nothing here to sell or give away, not even a stenographer, but if you will enclose an addressed postal card, I will gladly answer any question you may ask, as far as I can. I have just had two letters, and it bothered me quite a while to make out the names of the writers and where they lived. By the way, that "Wind Automobile" is not only "A thing of beauty," but promises to be "a joy" for a good long while.

BEE - SUPPLIES

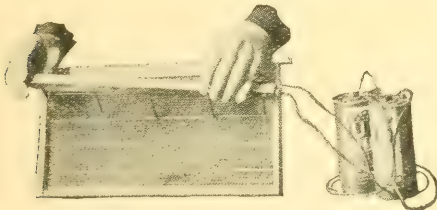
OUR LINE COMPLETE

We carry the largest supply
in our section. Send us your
inquiries.

Lowest Prices, Quality Considered

C. C. Clemons Bee Supply Co.
126 Grand Ave. KANSAS CITY, MO.

Electric Imbedder



Price without Batteries, \$1.25

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market. For sale by all bee-supply dealers.

Dadant & Sons Manufacturers Hamilton, Ills.

Don't Lose Any More Wax

Beekeepers: Let us print you some cloth or manilla tags to go on your shipments of wax with your name and address. That is the only safe way to be sure your wax isn't lost in transit.

Prices on Application.

The A. I. Root Co., Medina, Ohio

Beeswax Wanted

In big and small shipments to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1918. We are paying higher prices than ever for wax. - We work wax for cash or on shares.

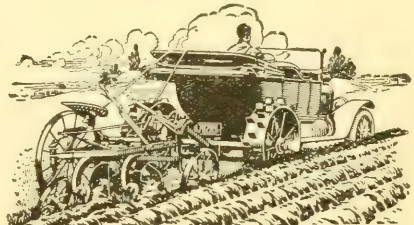
Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck

The Comb-foundation Specialist
Augusta, Kansas

Established 1899

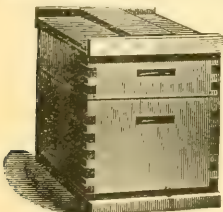


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Use it for farm work. Pullford catalog shows how to make a practical tractor out of Ford and other cars.

Write for Catalog

Pullford Co., Box 23 C Quincy, Ill.



Early-order Discounts will Pay You to Buy Bee Supplies Now

Thirty-two years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri.

PREPARE FOR 1920 NOW

And take advantage of our early-order discounts. You can save money by writing us, for the following reasons:

We have a complete stock of all kinds of Standard Lewis Bees, Sections, Dadant's Foundation, General Bee Supplies, Wax, Honey, and Honey-containers at Newark, New York.

We have the advantage of being located in a 1st-class R. R. center.

We have a modern up-to-date wax-rendering plant in operation.

Our new honey-packing department is in operation.

Come and pay our plant a visit or write us.

We are sure it will prove profitable to you.

The Deroy Taylor Co., -:- Newark, Wayne Co., New York

BEES BY THE POUND

Booking orders now with 10 per cent down, balance just before shipping. For full remittance with orders we offer the following DISCOUNTS: 5 per cent for October; 4 per cent for November; 3 per cent for December, and 2 per cent for January. We have shipped for several seasons thousands of pounds all over the United States and Canada. Guarantee shipment to be made on time—FREE circular explains; also gives prices on bees by parcel post; nuclei, etc.

PRICES F. O. B. HERE BY EXPRESS

QUEENS

1-lb. pkg. bees, \$2.40; 25 or more, \$2.16	Untested, \$1.50 each; 25 or more, \$1.35
2-lb. " " 4.25 " 3.83	Tested, 2.50 " 2.25
3-lb. " " 6.25 " 5.62	Select Tested, \$3.00 each.

Add price of queen wanted when ordering bees.

NUECES COUNTY APIARIES -:- CALLEEN, TEXAS

E. B. AULT, Prop.

"falcon"

Your Duty—Do You Know It?

It is to get ready for the coming season and be ready for the first honey flow. This will net you profits. Prepare your bees for a big year and take no chances. Get the best to do with and have the best results.

Our Duty—Do We Know It?

We get the beekeepers ready for the big season. Supply them with the best of everything with which to work and get the best results. Send us a list of your requirements for quotation. TO DELAY MEANS LOSS TO YOU. "Falcon" service cannot be beat. Catalog and Simplified Beekeeping on request.

W. T. Falconer Manufacturing Company

Falconer, New York

"where the best bee hives come from."

"falcon"

TUPELO HONEY

Never granulates.
Bright lemon color.
Of the highest quality.
For sale in any quantity.

J. J. WILDER, . WAYCROSS, GA.

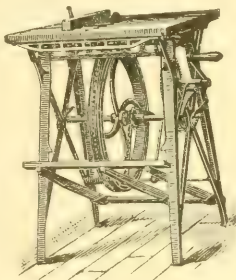
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

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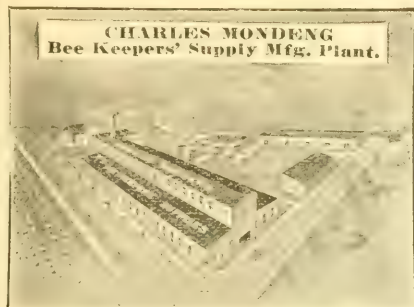
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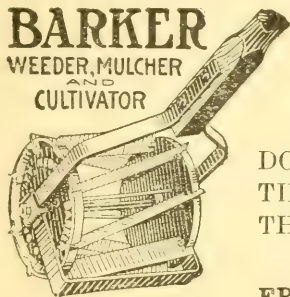
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Gleanings in Bee Culture

Index for 1919

Published by The A. I. Root Company, Medina, Ohio

Index to Gleanings in Bee Culture

Volume XXXVII

In using this index the reader should not fail to note that it is divided into five departments, namely, General, Editorial, A. I. Root's writings, Contributors, and Illustrations. The index of General includes everything except Editorials, Illustrations, and A. I. Root's writings.

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The A. I. Root Company of Iowa

Council Bluffs, Iowa

JOHN G. PATON

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Codes: Bentleys
Western Union
A B C Fifth Edition

Paton & Cowell

217 Broadway, New York

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Merchants

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of Pure Honey "As Made by the Bees"

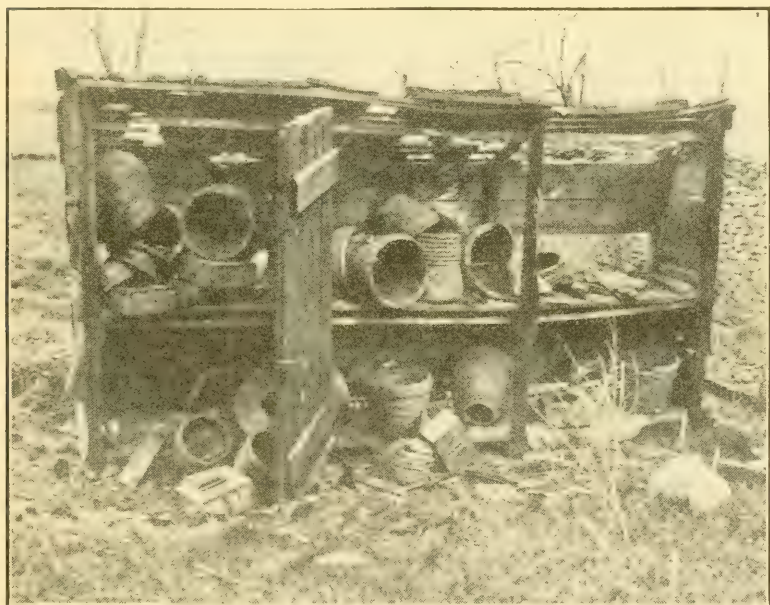
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